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ABSTRACT

The planning and implementing of dissemination programs for information needs in education are presented in 10 sections: I. Background; II. Data Collection and Analysis Plans; III. The State Surveys; IV. The "Query Followup" Study; V. The "Information Specialists" Study; VI. The "Hotline" Study; VII. The "Educational Serials Topic Trends" Study; VIII. Convergence of Findings; IX. Conclusions and Recommendations; and X. Bibliography. An appendix "Topic Trends in the Educational Report Literature," by Suzanne P. Hawkins and Robert Hawkins is included along with a sample of the questionnaire distributed in a 13-state survey. (LS)

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FINAL TECHNICAL REPORT:

DEVELOPING A SENSING NETWORK FOR INFORMATION NEEDS IN EDUCATION

SEPTEMBER, 1972

INSTITUTE FOR COMMUNICATION RESEARCH

STANFORD UNIVERSITY

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FINAL TECHNICAL REPORT:

DEVELOPING A SENSING NETWORK FOR INFORMATION NEEDS IN EDUCATION

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CONTENTS

	ACKNOWLEDGMENTS	ii
	SUMMARY	iv
I.	BACKGROUND	1
II.	DATA COLLECTION AND ANALYSIS PLANS	5
III.	THE STATE SURVEYS	12
IV.	THE "QUERY FOLLOWUP" STUDY	65
V.	THE "INFORMATION SPECIALISTS" STUDY	81
VI.	THE "HOTLINE" STUDY	85
VII.	THE "EDUCATIONAL SERIALS TOPIC TRENDS" STUDY	89
VIII.	CONVERGENCE OF FINDINGS	95
IX.	CONCLUSIONS AND RECOMMENDATIONS	99
	BIBLIOGRAPHY	109
	APPENDIX: "TOPIC TRENDS IN THE EDUCATIONAL REPORT LITERATURE"	111
	QUESTIONNAIRE	114

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ERIC Clearinghouse on Adult Education

ERIC Clearinghouse on Early Childhood Education

ERIC Clearinghouse on Educational Management

ERIC Clearinghouse on Higher Education

ERIC Clearinghouse on Junior Colleges

ERIC Clearinghouse on the Teaching of English

RISE Information Center (Pennsylvania)

Information Center, Northern Colorado Board of Cooperative Educational Services

Our USOE-NIE project monitor, John M. Coulson, provided advice and assistance at every phase of the work.

SUMMARY

The federal, state, and local governments jointly administer an educational information system that can respond flexibly to educators' information needs. ERIC clearinghouses, the NCEC Division of Educational Extension, and state/local information centers are key elements in this emerging national network.

In order to make the network responsive to the changing information needs of educators, the "Sensing Network" project undertook to test methods of information need assessment and to provide 1972 baseline data on educators' information needs.

Five methods were tested:

1. Thirteen "state surveys," in which questionnaires were distributed to personnel in selected school districts and state education agencies. Several thousand responses were collected in the 13 states.

2. A "query followup" study, in which educators who had requested information from an ERIC clearinghouse or local information center became the sample for a questionnaire survey.

3. An "information specialists" study, in which the expert personnel of ERIC clearinghouses and local information centers attempted to project the information needs of their clients.

4. A "hotline" study, in which educators across the country were invited to call a toll-free long-distance (INWATS) number to request information. Their requests were fulfilled; simultaneously the request topics were recorded as data. The "hotline" was operated for one month in the fall of 1971 and one month in the spring of 1972.

5. An "educational serials topic trends" study, in which the periodical literature of the field of education was monitored at four time points to detect changes in topic rankings. The four time points were December of 1970, June and December of 1971, and June of 1972.

A uniform data collection procedure was used in all studies, so that results could be compared. According to the logic of convergent validation, the validity of a method can be inferred from the extent to which its outcomes agree with the outcomes of alternative methods.

A simple two-page questionnaire was developed around six dimensions of information:

Independent Variables	-- Educator's POSITION
	-- Educator's LEVEL or locus of activity
Dependent Variables	-- Information needs bearing upon EDUCATIONAL PROCESS
	-- Information needs bearing upon EDUCATIONAL CONTENT
	-- Information needs bearing upon HUMAN VARIABLES
	-- Information FORMS of greatest usefulness

The questionnaire was unusual in that respondents were asked to juxtapose the PROCESS, CONTENT, and HUMAN VARIABLES dimensions in order to provide more specific data on information needs. Thus a respondent could say not only that information was needed on "testing and assessment" and "racial/cultural disadvantage" (which, in this form, would have to be analyzed as separate responses) but also that information was needed on "testing and assessment IN RELATION TO racial/cultural disadvantage" (allowing the relatedness of needs to be reflected in the analysis).

Fifteen analysis groups were formed around educators' positions and levels of activity. These are listed below, together with the number of educators classified into each group in the 13-state aggregate data:

-- All teachers (2,244)

-- Preschool/elementary teachers (1,151)

-- Secondary teachers (1,030)

-- All principals (701)

-- All administrators other than principals (750)

-- Preschool/elementary principals and administrators (404)

-- Secondary principals and administrators (408)

-- Nonschool administrators (587)

-- Guidance counselors and psychologists (443)

-- Instructional resources personnel (478)

-- Curriculum supervisors (204)

-- Program specialists and consultants (212)

-- Preschool/elementary service personnel (225)

-- Secondary service personnel (594)

-- Nonschool service personnel (300)

In most states, respondents were also classified according to the size and per-pupil expenditure of the districts in which they worked.

The final sample size of each method was:

-- State surveys (5,078)

-- Query followup study (377)

-- Information specialists study (130)

-- Hotline study (383)

-- Educational serials study (2,756)

A simple analysis of convergence was performed on the overall information need pattern produced by each method. Briefly, data from the process, content, and human variables dimensions were arrayed as a 50-element vector for each study. Arrays for all studies were brought into row-wise correspondence, so that responses to the same question occupied the same row in every case. The Euclidean distance separating each vector from every other vector was computed via the conventional D statistic. The resulting triangular matrix of 190 distances is the basis for judging agreement and disagreement among methods.

Studies form two affinity groups within the distance matrix. One group is composed of the state surveys, the query followup study, and the information specialists study. Agreement among these studies is good.

A second group is composed of the two hotline studies and the four educational serials studies. Agreement among these studies is weaker but still positive.

The major conclusion of this convergence analysis and the subsequent discussion is that there are two "methods of choice," the state survey method and the query followup method. Either can be recommended if the necessary cooperative arrangements will be beneficial to the SEA's, clearinghouses, information centers, etc., as well as to the data analysts and the National Center for Educational Communication.

Suggestions are made for interpreting information needs data and incorporating them into dissemination policy planning.

I. BACKGROUND

The federal, state, and local governments jointly administer an educational information system that can respond flexibly to educators' information needs. ERIC clearinghouses, the NCEC Division of Educational Extension, and state/local information centers are key elements in this emerging national network.

In order to make the network responsive to the changing information needs of educators, the "Sensing Network" project undertook to test methods of information need assessment and to provide 1972 baseline data on educators' information needs.

PRECEDENT RESEARCH. There is a 20-year tradition of research on the information needs of scientists and technologists. A 1952 study by Herner, INFORMATION GATHERING HABITS OF WORKERS IN PURE AND APPLIED SCIENCE, is generally acknowledged to be the first rigorous research in this area.

The extension of information needs research into all branches of science and into professions like medicine can be traced through the INTERNATIONAL CONFERENCE ON SCIENTIFIC INFORMATION (National Academy of Sciences, 1959), through Menzel's REVIEW OF STUDIES IN THE FLOW OF INFORMATION AMONG SCIENTISTS (1960), through Paisley's THE FLOW OF (BEHAVIORAL) SCIENCE INFORMATION (1965), and through the 1966-1971 chapters on "Information Needs and Uses" in the ANNUAL REVIEW OF INFORMATION SCIENCE AND TECHNOLOGY (Cuadra, editor), written by Menzel, Herner, Paisley, Allen, Lipetz, and Crane.

In these studies, the information gathering profiles of scientists and professionals show us a system in which informal, interpersonal channels are at least as significant as the formal channels whose responsiveness to changing information needs leaves much to be desired. The studies show that the individual scientist or professional is a "thrifty" information seeker who knows which channels bear what kinds of information. He knows how to economize time and effort in meeting information needs. He also knows the limitations of the information system; he abandons or defers questions that the system cannot answer.

However, the studies also show that the scientist or professional can misjudge information sufficiency. He can believe that he has adequate information when in fact he is planning unnecessary (duplicative) research or counter-indicated action. In the literature on scientific information, there are several "horror stories" of costly and even tragic actions that were counter-indicated by available information.

Unlike scientists, educators do not waste millions of dollars in duplicative research. Unlike physicians, they do not injure through ignorance. However, educators work in a fast-changing field. Without timely information on the topics that require decision and action in a given year, their judgment and performance can be impaired.

EVOLVING METHODOLOGY. The methodology of information needs research has improved greatly since the first studies were completed in the early 1950's. Paisley's 1965 review and 1968 chapter in the ANNUAL REVIEW OF INFORMATION SCIENCE AND TECHNOLOGY identified several methodological exemplars. Thanks to 20 years of trial and error, we now have a range of methods for assessing information needs, from the traditional field survey to unobstrusive monitoring of information-need "outcroppings."

The idea of continuing information needs assessment is not new. In 1965 the System Development Corporation issued a paper by Doyle entitled, "Perpetual User Studies: a Prerequisite for Management of Information on a National Scale." Doyle stated:

> This information gathering -- which we can think of as a "perpetual user study" -- could come to constitute a democratic control system with the user as the electorate. The user, however, would not vote in the usual sense, but more in the manner of refugees from East Berlin who "voted with their feet." Every interaction of the user with the literature/information access facility could be regarded as a vote.

The Stanford "Sensing Network" project undertook to test methods for a "perpetual user study." There are challenges in converting from a once-only to a continuing methodology. Decisions concerning samples, instruments, data gathering periods, and multi-time analysis are different from those in a once-only survey. The fact that the data are more useful makes the conversion effort worthwhile.

We began work with the knowledge that "multiple operationism" -- the eclectic use of multiple methods -- had proved itself in many behavioral studies. The procedure is documented in such articles and books as Campbell & Fiske on "convergent validation" (1959) and Webb et al. on "unobtrusive measures" (1966). We also knew that some methods tested by a multiple operationist approach would be criticized by statisticians and sampling experts on the grounds of obvious bias.

Our position was that bias alone does not disqualify a method. Rather, the effect of bias on the dependent variable should be estimated by means of multi-method "convergence tests." The amount of distortion introduced by bias, relative to method costs, yields a figure of merit for each method.

Subsequent chapters will describe the following methods:

1. Thirteen "state surveys," in which questionnaires were distributed to personnel in selected school districts and state education agencies. Several thousand responses were collected in the 13 states.

2. A "query followup" study, in which educators who had requested information from an ERIC clearinghouse or local information center became the sample for a questionnaire survey.

3. An "information specialists" study, in which the expert personnel of ERIC clearinghouses and local information centers attempted to project the information needs of their clients.

4. A "hotline" study, in which educators across the country were invited to call a toll-free long-distance (INWATS) number to request information. Their requests were fulfilled; simultaneously the request topics were recorded as data. The "hotline" was operated for one month in the fall of 1971 and one month in the spring of 1972.

5. An "educational serials topic trends" study, in which the periodical literature of the field of education was monitored at four time points to detect changes in topic rankings. The four time points were December of 1970, June and December of 1971, and June of 1972.

A uniform data collection procedure was used in all studies, so that results could be compared. According to the logic of convergent validation, the validity of a method can be inferred from the extent to which its outcomes agree with the outcomes of alternative methods. Tests reflecting upon convergent validity are presented and discussed in Chapter VIII.

II. DATA COLLECTION AND ANALYSIS PLANS

THE QUESTIONNAIRE. A simple two-page questionnaire was developed around six dimensions of information:

Independent Variables	-- Educator's POSITION
	-- Educator's LEVEL or locus of activity
Dependent Variables	-- Information needs bearing upon EDUCATIONAL PROCESS
	-- Information needs bearing upon EDUCATIONAL CONTENT
	-- Information needs bearing upon HUMAN VARIABLES
	-- Information FORMS of greatest usefulness

The questionnaire was unusual in that respondents were asked to juxtapose the PROCESS, CONTENT, and HUMAN VARIABLES dimensions in order to provide more specific data on information needs. Thus a respondent could say not only that information was needed on "testing and assessment" and "racial/cultural disadvantage" (which, in this form, would have to be analyzed as separate responses) but also that information was needed on "testing and assessment IN RELATION TO racial/cultural disadvantage" (allowing the relatedness of needs to be reflected in the analysis).

A specimen questionnaire is bound in the back of this report.

SIMPLIFIED ANALYSIS CATEGORIES. In each method that permitted such tabulation, the analysis plan was to partition the sample of educators into groups that would be: (a) homogeneous "within" and heterogeneous "between" so that information needs could be differentiated between groups; (b) large enough for stable percentages to be computed within each group.

After provisional classifications that included both more and fewer groups, the analysis finally settled upon 15 groups. The groups are not mutually exclusive; some contain the same personnel at two different levels of summation -- for example, "preschool/elementary teachers" and "all teachers."

The 15 groups are listed below. To give an indication of the number of educators who are classified into each group from a broad sample, numbers in parentheses are taken from 13-state aggregate data:

-- All teachers (2,244)

-- Preschool/elementary teachers (1,151)

-- Secondary teachers (1,030)

-- All principals (701)

-- All administrators other than principals (750)

-- Preschool/elementary principals and administrators (404)

-- Secondary principals and administrators (408)

-- Nonschool administrators (587)

-- Guidance counselors and psychologists (443)

-- Instructional resources personnel (478)

-- Curriculum supervisors (204)

-- Program specialists and consultants (212)

-- Preschool/elementary service personnel (225)

-- Secondary service personnel (594)

-- Nonschool service personnel (300)

In several categories above, "service" refers to all school functions apart from teaching and administration. Most samples include too few guidance counselors, librarians, media specialists, etc., for separate tabulation at the preschool/elementary and secondary levels. Aggregation into a "service" category permits separate tabulation at each level, although the groups being combined have little in common except the fact that they are not teachers or administrators.

Some cases were excluded from these simplified analysis categories because: (a) the additional group was too small to be analyzed separately; (b) it was too different from other groups to be merged with them. Research personnel are an example.

Finally, it should be noted that "all teachers" contains more cases than "preschool/elementary teachers" and "secondary teachers" combined. The 63 unaccounted-for teachers (above) worked in settings other than preschools, elementary schools, and secondary schools. Some were junior college teachers; others had assignments in school district central offices.

SIZE OF ANALYSIS GROUPS. In those studies that permitted tabulation by educational specialty and by school district characteristics, a lower bound for tabulation had to be established since it would be misleading to present findings based on a handful of cases only. Accordingly, tables are not presented for groups of less than 10 cases.

READING AND INTERPRETING THE TABLES. The layout of tables is intended to make information need patterns as apparent as possible. In each table, the ten most frequent responses to Q.2 (see questionnaire) are displayed in rank order. Taking a table from the 13-state aggregate data as an example (Table 1), note that "teaching techniques" and "motivation" were juxtaposed 255 times by the 2,244 teachers, that "teaching techniques" and "reading" were juxtaposed 219 times, and that (dropping down to the ninth rank) "teaching techniques" appeared by itself 115 times.

In the second half of Table 1 we see that such repeated mentions of "teaching techniques," by itself and in combination with other topics, give it a clear lead in ranked totals. In one context or another, "teaching techniques" was mentioned 1,977 times by the 2,244 teachers. However, since some teachers may have mentioned "teaching techniques" more than once, the percentaging base for ranked totals is the total number of topic mentions (stated at the top of the table as COUNT = 9,494).

INFORMATION NEEDS TABLE 1 (13 STATES) - 8

ALL TEACHERS: SAMPLE = 2244 COUNT = 9494

TOPIC 1	TOPIC 2	N	% SAMPLE
Teaching Techniques	Motivation	255	0.11
Teaching Techniques	Reading	219	0.10
Teaching Techniques	Mathematics	151	0.07
Couns., Guid. & Psych.	Emotional Disturbance	141	0.06
Teaching Techniques	Soc. Studies, Soc. Sci.	138	0.06
Teaching Techniques	English Language Skills	136	0.06
Tchr./Stud. Relations		133	0.06
Tchr./Stud. Relations	Motivation	133	0.06
Teaching Techniques		115	0.05
Tchr./Stud. Relations	Attitude	112	0.05

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	1977	0.11
Motivation	898	0.05
Curric. Plng. & Dev.	892	0.05
Testing & Assessment	892	0.05
Reading	834	0.05
Tchr./Stud. Relations	813	0.05
Grading	616	0.03
Early Chldhd. Educ.	572	0.03
Learning	570	0.03
Mathematics	529	0.03

A tendency not to juxtapose topics is common in some groups. Note in Table 2, also from the 13-state data, that principals almost invariably recorded topics by themselves and that only in tenth position does a combination appear. This may indicate that principals completed the questionnaire more hastily than teachers or that the list of administrative topics offered fewer possibilities for combination.

Tables that display somewhat less or somewhat more than ten rank-ordered topics are explained by two simplifying rules: (a) if the tenth topic is involved in a frequency tie with higher or lower topics, the ranking is broken above or below the tie, whichever point is closer to ten; (b) in no case is a topic reported with fewer than three respondent mentions, even if the list has to be curtailed accordingly.

The "information forms" table is percentaged row-wise, according to the number of educators in each group. Percentages in each row can sum to more than 100 per cent because respondents were free to check all forms in which information is "most useful."

SUGGESTED STRATEGY FOR READING THE TABLES. By and large, the data are face valid. We do not expect a project like this to reveal unsuspected facts about respondents.

The useful findings are not that teachers need information on "teaching techniques" or that administrators need information on "educational administration (general)." Useful findings show patterns of priority and juxtaposition within a set of topics whose occurrence, in itself, is expected. Thus it is useful to know that secondary teachers give first priority to the combination of "teaching techniques" and "motivation," and that preschool/ elementary teachers give second priority to this combination, just behind "teaching techniques" and "reading."

We suggest the following steps in reading the tables:

1. Note the size of the analysis group in each table. Tables are not presented for groups of less than 10. Additionally, tables presented for groups of less than 20 may not merit much attention.

2. In each information needs table, the ratio of the "count" to the "sample" indicates the tendency of that group to state many or few needs. For example, if the sample is 100 and the count 400, the resulting count/sample ratio of 4:1 indicates that, on the average, a respondent mentioned four topics.

INFORMATION NEEDS TABLE 2 (13 STATES) - 10

ALL PRINCIPALS: SAMPLE = 701 COUNT = 3324

TOPIC 1	TOPIC 2	N	% SAMPLE
School/Comm. Relations		157	0.22
Scheduling		130	0.19
Educ. Admin. (Gen.)		123	0.18
Curric. Plng. & Dev.		118	0.17
Personnel Admin.		105	0.15
Pre/In-Service Tng.		89	0.13
Tchr./Stud. Relations		77	0.11
Teaching Techniques		61	0.09
Grading		58	0.08
Tchr,/Stud. Relations	Attitude	55	0.08

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	461	0.09
Teaching Techniques	270	0.05
School/Comm. Relations	252	0.05
Tchr./Stud. Relations	249	0.05
Performance	243	0.05
Pre/In-Service Tng.	236	0.04
Motivation	218	0.04
Group Processes	206	0.04
Educ. Admin. (Gen.)	204	0.04
Attitude	190	0.04

In the 13-state aggregate data, the overall count/sample ratio is about 4.4:1. Preschool/elementary teachers have a count/sample ratio of 4.3:1, while secondary teachers have a count/sample ratio of only 4.1:1. Curriculum supervisors and guidance counselors/psychologists have count/sample ratios of 5.0:1 and 4.8:1 respectively.

3. Note the most frequently mentioned needs at the top of the table, and note the percentage of the sample that mentioned them. Compare these data with corresponding data from other studies.

4. Note the dominant "ranked topic totals" at the bottom of the table. Compare these totals with other studies. Since the totals summarize topic mentions across all rows of the top table, the "ranked topic totals" show patterns that may be difficult to detect in the top tables.

5. Note differences among related tables. For example, teachers at the two levels typically agree on most topics but differ on topics like "reading," "early childhood education," and "emotional disturbance." Administrators at the two levels differ in their "inward" versus "outward" orientation -- preschool/elementary administrators mention more topics related to the classroom and children's experience, while secondary administrators mention more topics related to administrative technique.

III. THE STATE SURVEYS

All 50 states were invited to take part in the spring 1972 "wave" of surveys. In most cases, the invitation was addressed to a person known to be responsible for dissemination in the state department of education. Of course, for one reason or another, not all invitations found their mark.

After a number of states had decided not to participate in the study because of timing, internal problems, etc., we were left with 13 states in which questionnaires were distributed and returned in sufficient quantity for analysis.

INSTRUMENT. The "basic questionnaire," bound in the back of this report, was used in all state surveys.

SAMPLING AND STUDY ADMINISTRATION. In each participating state the following procedure was followed as closely as local circumstances permitted:

1. The Stanford team drew a preliminary sample of 18 districts, stratified according to size (under 5,000 enrollment, between 5,000 and 25,000, and over 25,000) and per-pupil expenditure (above and below the state median).

2. The state coordinator was free to choose 9 districts from the 18, subject to distributional restrictions. It was assumed that the coordinator's choices, although based on convenience and access, would not bias the outcome (patterns of information needs).

3. To the 9 chosen districts the state coordinator added the state department of education itself. Thus, in an ideal case, there were 10 secondary sampling units, or SSU's. Some states, like Alaska, could not provide the requisite number or pattern of districts. The plan was modified for such states on an individual basis.

4. Tertiary sampling units, or TSU's, were educators themselves. Twenty-six professional categories were distinguished within school districts, and within some of these (e.g., secondary teacher) further distinctions were made on the basis of subject matter or special responsibilities. According to district size, different numbers of educators were to be sampled from each category. The total sample for a small district was 25; for a medium district, 75; and for a large district, 125.

5. Fourteen professional categories were set apart within the tenth SSU, the state department of education. A total of 35 state department personnel was to be sampled.

6. The number of cases drawn from all ten SSU's represented a 40 per cent oversample. It was expected that some of the 700 cases would be lost because of illness, leave, turnover, and inaccuracies in the personnel roster. Of those that remained, the desired total of 500 would represent about an 80 per cent completion rate.

7. Materials for data collection (questionnaires, sampling plan) were mailed from Stanford to each state. Because of delays caused by federal forms clearance (questionnaire approval), some states received their materials very late in the 1971-1972 school year. The resulting time pressure was responsible for poor response rates. In several cases, proper followups could not be conducted.

8. Each state made its own arrangements for the actual distribution and return of questionnaires. Returned questionnaires were bundled and sent to Stanford for analysis.

NUMBER OF RESPONSES IN EACH STATE. Some states, in agreeing to participate in the study, warned us that they would be unable to collect the desired 500 responses before the end of the 1971-1972 school year. Some of these states would have preferred to collect a full sample in the fall of 1972, as other states now intend to do, but we persuaded them to contribute as many cases as they could to the spring 1972 survey.

The number of responses in each state that could be tabulated in the 15 professional specialty groups (see p.6) is as follows:

Alaska	148
California	626
Colorado	99
Iowa	438
Michigan	383
Minnesota	406
Nebraska	481
New York	532
North Carolina	562
Oregon	489
Pennsylvania	216
Texas	509
Utah	129

Actually, each state had additional respondents, such as researchers, who could neither be analyzed separately (too few cases) nor aggregated with another category (too different). These additional respondents total to less than 100 across the 13 states.

FINDINGS. The following 48 tables are a small subset of all tables from the 13 state surveys. They cover:

1. The aggregate 13-state data.

2. Data from Texas, the state that agrees most with the consensus of all other states (see Chap. VIII).

3. Data from North Carolina, the state that agrees least with the consensus of all other states.

4. But NOT district size or per-pupil expenditure tables, which were reported from Stanford to the states but lack interpretable trends.

INFORMATION NEEDS TABLE 3A (13 STATES) - 15

ALL TEACHERS: SAMPLE = 2244 COUNT = 9494

TOPIC 1	TOPIC 2	N	% SAMPLE
Teaching Techniques	Motivation	255	0.11
Teaching Techniques	Reading	219	0.10
Teaching Techniques	Mathematics	151	0.07
Couns., Guid. & Psych.	Emotional Disturbance	141	0.06
Teaching Techniques	Soc. Studies, Soc. Sci.	138	0.06
Teaching Techniques	English Language Skills	136	0.06
Tchr./Stud. Relations		133	0.06
Tchr./Stud. Relations	Motivation	133	0.06
Teaching Techniques		115	0.05
Tchr./Stud. Relations	Attitude	112	0.05

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	1977	0.11
Motivation	898	0.05
Curric. Plng. & Dev.	892	0.05
Testing & Assessment	892	0.05
Reading	834	0.05
Tchr./Stud. Relations	813	0.05
Grading	616	0.03
Early Chldhd. Educ.	572	0.03
Learning	570	0.03
Mathematics	529	0.03

INFORMATION NEEDS TABLE 3B (TEXAS) - 16

ALL TEACHERS: SAMPLE = 261 COUNT = 1160

TOPIC 1	TOPIC 2	N	% SAMPLE
Teaching Techniques	Motivation	42	0.16
Teaching Techniques	Reading	34	0.13
Teaching Techniques	English Language Skills	28	0.11
Tchr./Stud. Relations		24	0.09
Couns., Guid. & Psych.	Emotional Disturbance	21	0.08
Teaching Techniques	Soc. Studies, Soc. Sci.	18	0.07
School/Comm. Relations		17	0.07
Bilingual Education	Racial/Cultural Dis.	15	0.06
Grading	Ability	15	0.06
Tchr./Stud. Relations	Motivation	15	0.06

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	263	0.12
Reading	125	0.06
Motivation	115	0.05
Tchr./Stud. Relations	114	0.05
Testing & Assessment	111	0.05
Racial/Cultural Dis.	89	0.04
Grading	79	0.04
Curric. Plng. & Dev.	78	0.04
English Language Skills	77	0.04
Soc. Studies, Soc. Sci.	68	0.03

INFORMATION NEEDS TABLE 3C (NORTH CAROLINA)

ALL TEACHERS: SAMPLE = 247 COUNT = 1022

TOPIC 1	TOPIC 2	N	% SAMPLE
Teaching Techniques	Motivation	33	0.13
Tchr./Stud. Relations	Attitude	19	0.08
Tchr./Stud. Relations	Racial/Cultural Dis.	19	0.08
Testing & Assessment	Performance	18	0.07
Early Chldhd. Educ.	Motivation	17	0.07
Teaching Techniques	Reading	17	0.07
Couns., Guid. & Psych.	Emotional Disturbance	16	0.06
Tchr./Stud. Relations		15	0.06
Teaching Techniques	Mathematics	15	0.06
Testing & Assessment	Mental Retardation	14	0.06

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	194	0.10
Motivation	108	0.06
Testing & Assessment	100	0.05
Early Chldhd. Educ.	97	0.05
Tchr./Stud. Relations	97	0.05
Grading	82	0.04
Reading	77	0.04
Curric. Plng. & Dev.	69	0.04
Racial/Cultural Dis.	69	0.04
Mental Retardation	65	0.03

INFORMATION NEEDS TABLE 4A (13 STATES) - 18

PRESCHOOL/ELEMENTARY TEACHERS: SAMPLE = 1151 COUNT = 4980

TOPIC 1	TOPIC 2	N	% SAMPLE
Teaching Techniques	Reading	162	0.14
Teaching Techniques	Motivation	131	0.11
Couns., Guid. & Psych.	Emotional Disturbance	118	0.10
Teaching Techniques		74	0.06
Early Chldhd. Educ.	Learning	72	0.06
Teaching Techniques	Mathematics	71	0.06
Testing & Assessment	Reading	71	0.06
Teaching Techniques	Soc. Studies, Soc. Sci.	70	0.06
Grading		66	0.06
Early Chldhd. Educ.	Motivation	61	0.05

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	1021	0.11
Reading	635	0.07
Early Chldhd. Educ.	535	0.06
Motivation	462	0.05
Testing & Assessment	449	0.05
Curric. Plng. & Dev.	396	0.04
Emotional Disturbance	392	0.04
Learning	368	0.04
Tchr./Stud. Relations	362	0.04
Grading	308	0.03

INFORMATION NEEDS TABLE 4B (TEXAS) - 19

PRESCHOOL/ELEMENTARY TEACHERS: SAMPLE = 138 COUNT = 627

TOPIC 1	TOPIC 2	N	% SAMPLE
Teaching Techniques	Reading	24	0.17
Teaching Techniques	Motivation	23	0.17
Couns., Guid. & Psych.	Emotional Disturbance	20	0.14
Bilingual Education	Racial/Cultural Dis.	13	0.09
Teaching Techniques	Racial/Cultural Dis.	11	0.08
Bilingual Education		9	0.07
Bilingual Education	Reading	9	0.07
Tchr./Stud. Relations		9	0.07
Testing & Assessment	Reading	9	0.07

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	144	0.12
Reading	97	0.08
Motivation	62	0.05
Racial/Cultural Dis.	58	0.05
Early Chldhd. Educ.	53	0.05
Tchr./Stud. Relations	51	0.04
Emotional Disturbance	50	0.04
Testing & Assessment	49	0.04
Bilingual Education	45	0.04
Grading	45	0.04

INFORMATION NEEDS TABLE 4C (NORTH CAROLINA) - 20

PRESCHOOL/ELEMENTARY TEACHERS: SAMPLE = 139 COUNT = 555

TOPIC 1	TOPIC 2	N	% SAMPLE
Early Chldhd. Educ.	Motivation	17	0.12
Teaching Techniques	Motivation	17	0.12
Testing & Assessment	Mental Retardation	14	0.10
Couns., Guid. & Psych.	Emotional Disturbance	13	0.09
Tchr./Stud. Relations	Attitude	13	0.09
Early Chldhd. Educ.	Learning	12	0.09
Teaching Techniques	Reading	11	0.08
Testing & Assessment	Performance	10	0.07
Early Chldhd. Educ.	Emotional Disturbance	9	0.06
Special Education	Mental Retardation	9	0.06
Testing & Assessment	Ability	9	0.06

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	99	0.09
Early Chldhd. Educ.	97	0.09
Mental Retardation	61	0.06
Motivation	57	0.05
Reading	56	0.05
Testing & Assessment	50	0.05
Emotional Disturbance	50	0.05
Tchr./Stud. Relations	47	0.04
Special Education	41	0.04
Learning	40	0.04

INFORMATION NEEDS TABLE 5A (13 STATES)

SECONDARY TEACHERS: SAMPLE = 1030 COUNT = 4242

TOPIC 1	TOPIC 2	N	% SAMPLE
Teaching Techniques	Motivation	121	0.12
Teaching Techniques	English Language Skills	93	0.09
Teaching Techniques	Mathematics	74	0.07
Tchr./Stud. Relations		73	0.07
Tchr./Stud. Relations	Motivation	73	0.07
Teaching Techniques	Nat. & Phys. Sciences	71	0.07
Teaching Techniques	Soc. Studies, Soc. Sci.	67	0.07
Curric. Plng. & Dev.	English Language Skills	57	0.06
Teaching Techniques	Reading	54	0.05
Tchr./Stud. Relations	Attitude	52	0.05

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	902	0.11
Curric. Plng. & Dev.	462	0.06
Tchr./Stud. Relations	439	0.06
Motivation	422	0.05
Testing & Assessment	41[illegible]	0.05
English Language Skills	331	0.04
Mathematics	305	0.04
Nat. & Phys. Sciences	292	0.04
Grading	289	0.04
Soc. Studies, Soc. Sci.	247	0.03

INFORMATION NEEDS TABLE 5B (TEXAS)

SECONDARY TEACHERS: SAMPLE = 122 COUNT = 528

TOPIC 1	TOPIC 2	N	% SAMPLE
Teaching Techniques	English Language Skills	20	0.16
Teaching Techniques	Motivation	19	0.16
Tchr./Stud. Relations		15	0.12
Testing & Assessment	English Language Skills	12	0.10
Teaching Techniques	Nat. & Phys. Sciences	10	0.08
Teaching Techniques	Reading	10	0.08
Teaching Techniques	Soc. Studies, Soc. Sci.	10	0.08
School/Comm. Relations		9	0.07
Tchr./Stud. Relations	Motivation	8	0.07
Tchr./Stud. Relations	Racial/Cultural Dis.	8	0.07
Teaching Techniques	Current Social Problems	8	0.07

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	119	0.12
Tchr./Stud. Relations	63	0.06
Testing & Assessment	61	0.06
English Language Skills	52	0.05
Motivation	52	0.05
Current Social Problems	44	0.05
Curric. Plng. & Dev.	42	0.04
Nat. & Phys. Sciences	35	0.04
Soc. Studies, Soc. Sci.	35	0.04
Grading	34	0.03

INFORMATION NEEDS TABLE 5C (NORTH CAROLINA)

SECONDARY TEACHERS: SAMPLE = 108 COUNT = 467

TOPIC 1	TOPIC 2	N	% SAMPLE
Teaching Techniques	Motivation	16	0.15
Tchr./Stud. Relations	Racial/Cultural Dis.	11	0.10
Teaching Techniques	English Language Skills	10	0.09
Teaching Techniques	Mathematics	10	0.09
Teaching Techniques	Nat. & Phys. Sciences	10	0.09
Grading	Ability	9	0.08
Tchr./Stud. Relations		8	0.07
Testing & Assessment	Performance	8	0.07
Tchr./Stud. Relations	Motivation	7	0.06
Testing & Assessment	Mathematics	7	0.06

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	95	0.11
Motivation	51	0.06
Tchr./Stud. Relations	50	0.06
Testing & Assessment	50	0.06
Grading	48	0.05
English Language Skills	44	0.05
Mathematics	36	0.04
Nat. & Phys. Sciences	35	0.04
Curric. Plng. & Dev.	34	0.04
Group Processes	33	0.04

INFORMATION NEEDS TABLE 6A (13 STATES)

ALL PRINCIPALS: SAMPLE = 701 COUNT = 3324

TOPIC 1	TOPIC 2	N	% SAMPLE
School/Comm. Relations		157	0.22
Scheduling		130	0.19
Educ. Admin. (Gen.)		123	0.18
Curric. Plng. & Dev.		118	0.17
Personnel Admin.		105	0.15
Pre/In-Service Tng.		89	0.13
Tchr./Stud. Relations		77	0.11
Teaching Techniques		61	0.09
Grading		58	0.08
Tchr./Stud. Relations	Attitude	55	0.08

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	461	0.09
Teaching Techniques	270	0.05
School/Comm. Relations	252	0.05
Tchr./Stud. Relations	249	0.05
Performance	243	0.05
Pre/In-Service Tng.	236	0.04
Motivation	218	0.04
Group Processes	206	0.04
Educ. Admin. (Gen.)	204	0.04
Attitude	190	0.04

INFORMATION NEEDS TABLE 6B (TEXAS) - 25

ALL PRINCIPALS: SAMPLE = 63 COUNT = 303

TOPIC 1	TOPIC 2	N	% SAMPLE
Scheduling		22	0.35
Personnel Admin.		18	0.29
Educ. Admin. (Gen.)		17	0.27
Curric. Plng. & Dev.		12	0.19
School/Comm. Relations		12	0.19
Pre/In-Service Tng.		11	0.17
Tchr./Stud. Relations		10	0.16
Policy Planning		8	0.13
Teaching Techniques		8	0.13
Grading		7	0.11

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	31	0.07
Teaching Techniques	28	0.06
Grading	26	0.06
Scheduling	23	0.05
Tchr./Stud. Relations	22	0.05
Educ. Admin. (Gen.)	21	0.05
Personnel Admin.	21	0.05
Motivation	20	0.05
Couns., Guid. & Psych.	18	0.04
School/Comm. Relations	18	0.04

INFORMATION NEEDS TABLE 6C (NORTH CAROLINA) - 26

ALL PRINCIPALS: SAMPLE = 75 COUNT = 384

TOPIC 1	TOPIC 2	N	% SAMPLE
Educ. Admin. (Gen.)		19	0.25
Personnel Admin.		17	0.23
Scheduling		15	0.20
Curric. Plng. & Dev.		12	0.16
Finance Plng. & Admin.		12	0.16
School/Comm. Relations		11	0.15
Policy Planning		8	0.11
Tchr./Stud. Relations	Attitude	8	0.11
Curric. Plng. & Dev.	Mathematics	7	0.09
Early Chldhd. Educ.		7	0.09
Pre/In-Service Tng.		7	0.09

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	57	0.09
Motivation	32	0.05
Teaching Techniques	31	0.05
Performance	31	0.05
Personnel Admin.	28	0.05
Educ. Admin. (Gen.)	27	0.04
Tchr./Stud. Relations	27	0.04
Couns., Guid. & Psych.	25	0.04
Scheduling	24	0.04
School/Comm. Relations	24	0.04

INFORMATION NEEDS TABLE 7A (13 STATES) - 27

ALL ADMIN. OTHER THAN PRINCIPALS: SAMPLE = 750 COUNT = 3282

TOPIC 1	TOPIC 2	N	% SAMPLE
Finance Plng. & Admin.		172	0.23
Educ. Admin. (Gen.)		156	0.21
School/Comm. Relations		150	0.20
Policy Planning		144	0.19
Facil. Plng. & Admin.		122	0.16
Pre/In-Service Tng.		113	0.15
Personnel Admin.		111	0.15
Curric. Plng. & Dev.		94	0.13
Testing & Assessment	Performance	61	0.08
Testing & Assessment		50	0.07

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	331	0.07
Performance	279	0.06
Pre/In-Service Tng.	258	0.05
Testing & Assessment	244	0.05
Educ. Admin. (Gen.)	239	0.05
School/Comm. Relations	236	0.05
Finance Plng. & Admin.	222	0.04
Personnel Admin.	205	0.04
Policy Planning	196	0.04
Teaching Techniques	180	0.04

INFORMATION NEEDS TABLE 7B (TEXAS) - 28

ALL ADMIN. OTHER THAN PRINCIPALS: SAMPLE = 64 COUNT = 282

TOPIC 1	TOPIC 2	N	% SAMPLE
School/Comm. Relations		16	0.25
Finance Plng. & Admin.		14	0.22
Educ. Admin. (Gen.)		12	0.19
Curric. Plng. & Dev.		10	0.16
Facil. Plng. & Admin.		10	0.16
Policy Planning		10	0.16
Pre/In-Service Tng.		10	0.16
Personnel Admin.		8	0.13
Statistical Analysis		6	0.09

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	31	0.07
Pre/In-Service Tng.	24	0.06
Performance	21	0.05
School/Comm. Relations	19	0.04
Teaching Techniques	18	0.04
Educ. Admin. (Gen.)	17	0.04
Personnel Admin.	17	0.04
Testing & Assessment	17	0.04
Reading	17	0.04
Early Chldhd. Educ.	16	0.04
Finance Plng. & Admin.	16	0.04

INFORMATION NEEDS TABLE 7C (NORTH CAROLINA) - 29

ALL ADMIN. OTHER THAN PRINCIPALS: SAMPLE = 61 COUNT = 261

TOPIC 1	TOPIC 2	N	% SAMPLE
Facil. Plng. & Admin.		18	0.30
Educ. Admin. (Gen.)		17	0.28
Policy Planning		16	0.26
Finance Plng. & Admin.		15	0.25
School/Comm. Relations		11	0.18
Curric. Plng. & Dev.		7	0.11
Personnel Admin.		7	0.11
Testing & Assessment	Performance	6	0.10
Pre/In-Service Tng.		5	0.08

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Educ. Admin. (Gen.)	27	0.07
Testing & Assessment	24	0.06
Curric. Plng. & Dev.	23	0.06
Facil. Plng. & Admin.	22	0.05
School/Comm. Relations	21	0.05
Finance Plng. & Admin.	20	0.05
Policy Planning	20	0.05
Performance	19	0.05
Racial/Cultural Dis.	17	0.04
Pre/In-Service Tng.	14	0.03

INFORMATION NEEDS TABLE 8A (13 STATES) - 30

PRESCH./ELEM. PRINCIPALS/ADMIN.: SAMPLE = 404 COUNT = 1937

TOPIC 1	TOPIC 2	N	% SAMPLE
School/Comm. Relations		81	0.20
Educ. Admin. (Gen.)		60	0.15
Curric. Plng. & Dev.		59	0.15
Pre/In-Service Tng.		53	0.13
Personnel Admin.		40	0.10
Teaching Techniques		37	0.09
Early Chldhd. Educ.		33	0.08
Grading		33	0.08
Curric. Plng. & Dev.	Reading	30	0.07
Tchr./Stud. Relations	Attitude	29	0.07

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	262	0.08
Teaching Techniques	191	0.06
Performance	161	0.05
Pre/In-Service Tng.	154	0.05
School/Comm. Relations	143	0.04
Reading	143	0.04
Group Processes	142	0.04
Testing & Assessment	133	0.04
Learning	122	0.04
Early Chldhd. Educ.	121	0.04

INFORMATION NEEDS TABLE 8B (TEXAS) - 31

PRESCH./ELEM. PRINCIPALS/ADMIN.: SAMPLE = 37 COUNT = 185

TOPIC 1	TOPIC 2	N	% SAMPLE
Pre/In-Service Tng.		9	0.24
Educ. Admin. (Gen.)		7	0.19
Curric. Plng. & Dev.		6	0.16
School/Comm. Relations		6	0.16
Bilingual Education		5	0.14
Grading		5	0.14
Personnel Admin.		5	0.14
Teaching Techniques	Learning	5	0.14
Grading	Performance	4	0.11
Teaching Techniques		4	0.11

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	23	0.08
Early Chldhd. Educ.	19	0.06
Curric. Plng. & Dev.	17	0.06
Pre/In-Service Tng.	16	0.05
Motivation	16	0.05
Grading	14	0.05
Reading	14	0.05
Bilingual Education	12	0.04
Learning	12	0.04
Tchr./Stud. Relations	11	0.04
Performance	11	0.04

INFORMATION NEEDS TABLE 8C (NORTH CAROLINA) - 32

PRESCH./ELEM. PRINCIPALS/ADMIN.: SAMPLE = 35 COUNT = 174

TOPIC 1	TOPIC 2	N	% SAMPLE
Early Chldhd. Educ.		7	0.20
Curric. Plng. & Dev.	Mathematics	6	0.17
School/Comm. Relations		6	0.17
Couns., Guid. & Psych.	Emotional Disturbance	5	0.14
Educ. Admin. (Gen.)		5	0.14
Personnel Admin.		5	0.14
Pre/In-Service Tng.		5	0.14

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	23	0.08
Performance	17	0.06
Teaching Techniques	16	0.05
Couns., Guid. & Psych.	15	0.05
Early Chldhd. Educ.	15	0.05
Motivation	14	0.05
Pre/In-Service Tng.	13	0.04
Learning	13	0.04
Testing & Assessment	12	0.04
Racial/Cultural Dis.	12	0.04

INFORMATION NEEDS TABLE 9A (13 STATES) - 33

SECONDARY PRINCIPALS/ADMINISTRATORS: SAMPLE = 408 COUNT = 1869

TOPIC 1	TOPIC 2	N	% SAMPLE
Scheduling		116	0.28
School/Comm. Relations		87	0.21
Educ. Admin. (Gen.)		78	0.19
Personnel Admin.		74	0.18
Curric. Plng. & Dev.		72	0.18
Pre/In-Service Tng.		57	0.14
Tchr./Stud. Relations		53	0.13
Curric. Plng. & Dev.	Career Training	45	0.11
Policy Planning		44	0.11
Finance Plng. & Admin.		39	0.10

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	275	0.10
Scheduling	156	0.05
Tchr./Stud. Relations	148	0.05
School/Comm. Relations	134	0.05
Pre/In-Service Tng.	123	0.04
Teaching Techniques	123	0.04
Motivation	120	0.04
Educ. Admin. (Gen.)	117	0.04
Personnel Admin.	110	0.04
Performance	110	0.04

INFORMATION NEEDS TABLE 9B (TEXAS) - 34

SECONDARY PRINCIPALS/ADMINISTRATORS: SAMPLE = 39 COUNT = 182

TOPIC 1	TOPIC 2	N	% SAMPLE
Scheduling		20	0.51
Educ. Admin. (Gen.)		13	0.33
Personnel Admin.		13	0.33
Curric. Plng. & Dev.		8	0.21
School/Comm. Relations		7	0.18
Tchr./Stud. Relations		7	0.18
Policy Planning		5	0.13
Pre/In-Service Tng.		5	0.13

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	29	0.11
Scheduling	21	0.08
Educ. Admin. (Gen.)	15	0.06
Personnel Admin.	15	0.06
Grading	14	0.05
Tchr./Stud. Relations	14	0.05
Teaching Techniques	14	0.05
Motivation	13	0.05
Couns., Guid. & Psych.	10	0.04
School/Comm. Relations	9	0.04

INFORMATION NEEDS TABLE 9C (NORTH CAROLINA)

SECONDARY PRINCIPALS/ADMINISTRATORS: SAMPLE = 46 COUNT = 230

TOPIC 1	TOPIC 2	N	% SAMPLE
Educ. Admin. (Gen.)		15	0.33
Scheduling		15	0.33
Personnel Admin.		12	0.26
Curric. Plng. & Dev.		9	0.20
Finance Plng. & Admin.		9	0.20
Curric. Plng. & Dev.	Career Training	7	0.15
Tchr./Stud. Relations	Attitude	7	0.15
Facil. Plng. & Admin.		6	0.13
Policy Planning		6	0.13

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	35	0.10
Scheduling	22	0.06
Tchr./Stud. Relations	22	0.06
Educ. Admin. (Gen.)	21	0.06
Motivation	19	0.05
Attitude	18	0.05
Personnel Admin.	17	0.05
School/Comm. Relations	16	0.04
Performance	16	0.04
Teaching Techniques	15	0.04

INFORMATION NEEDS TABLE 10A (13 STATES)

NON-SCHOOL ADMINISTRATORS: SAMPLE = 587 COUNT = 2571

TOPIC 1	TOPIC 2	N	% SAMPLE
Finance Plng. & Admin.		154	0.26
Educ. Admin. (Gen.)		130	0.22
Policy Planning		129	0.22
School/Comm. Relations		127	0.22
Facil. Plng. & Admin.		110	0.19
Personnel Admin.		90	0.15
Pre/In-Service Tng.		83	0.14
Curric. Plng. & Dev.		74	0.13
Testing & Assessment	Performance	49	0.08
Research		44	0.07

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	235	0.06
Performance	233	0.06
Educ. Admin. (Gen.)	199	0.05
Finance Plng. & Admin.	199	0.05
Pre/In-Service Tng.	198	0.05
Testing & Assessment	194	0.05
School/Comm. Relations	193	0.05
Policy Planning	177	0.05
Personnel Admin.	169	0.04
Facil. Plng. & Admin.	147	0.04

INFORMATION NEEDS TABLE 10B (TEXAS)

NON-SCHOOL ADMINISTRATORS: SAMPLE = 51 COUNT = 218

TOPIC 1	TOPIC 2	N	% SAMPLE
School/Comm. Relations		15	0.29
Finance Plng. & Admin.		14	0.27
Facil. Plng. & Admin.		10	0.20
Policy Planning		10	0.20
Educ. Admin. (Gen.)		9	0.18
Curric. Plng. & Dev.		8	0.16
Personnel Admin.		8	0.16
Pre/In-Service Tng.		7	0.14
Statistical Analysis		6	0.12
Educ. Media Serv.		5	0.10
Research		5	0.10

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Performance	20	0.06
School/Comm. Relations	18	0.06
Personnel Admin.	17	0.05
Curric. Plng. & Dev.	16	0.05
Finance Plng. & Admin.	16	0.05
Pre/In-Service Tng.	15	0.05
Testing & Assessment	15	0.05
Educ. Admin. (Gen.)	14	0.04
Facil. Plng. & Admin.	14	0.04
Career Training	14	0.04

INFORMATION NEEDS TABLE 10C (NORTH CAROLINA) - 38

NON-SCHOOL ADMINISTRATORS: SAMPLE = 53 COUNT = 231

TOPIC 1	TOPIC 2	N	% SAMPLE
Facil. Plng. & Admin.		17	0.32
Policy Planning		16	0.30
Educ. Admin. (Gen.)		15	0.28
Finance Plng. & Admin.		15	0.28
School/Comm. Relations		11	0.21
Curric. Plng. & Dev.		7	0.13
Personnel Admin.		7	0.13
Pre/In-Service Tng.		5	0.09
Testing & Assessment	Performance	5	0.09
Educ. Media Serv.		4	0.08
Teaching Techniques		4	0.08

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Educ. Admin. (Gen.)	23	0.07
Curric. Plng. & Dev.	22	0.06
Facil. Plng. & Admin.	21	0.06
Finance Plng. & Admin.	20	0.06
Testing & Assessment	20	0.06
Policy Planning	18	0.05
School/Comm. Relations	18	0.05
Performance	16	0.05
Racial/Cultural Dis.	14	0.04
Health, Safety, P.E.	13	0.04

INFORMATION NEEDS TABLE 11A (13 STATES) - 39

GUIDANCE COUNSELORS/PSYCHOLOGISTS: SAMPLE = 443 COUNT = 2144

TOPIC 1	TOPIC 2	N	% SAMPLE
Couns., Guid. & Psych.	Group Processes	136	0.31
Couns., Guid. & Psych.	Emotional Disturbance	93	0.21
Couns., Guid. & Psych.	Career Training	86	0.19
Couns., Guid. & Psych.		80	0.18
Couns., Guid. & Psych.	Motivation	70	0.16
Scheduling		56	0.13
School/Comm. Relations		55	0.12
Couns., Guid. & Psych.	Current Social Problems	50	0.11
Testing & Assessment		49	0.11
Couns., Guid. & Psych.	Attitude	45	0.10

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Couns., Guid. & Psych.	709	0.19
Testing & Assessment	256	0.07
Group Processes	236	0.06
Career Training	220	0.06
Motivation	190	0.05
Tchr./Stud. Relations	179	0.05
Emotional Disturbance	170	0.04
Racial/Cultural Dis.	136	0.04
Attitude	131	0.03
Current Social Problems	130	0.03

INFORMATION NEEDS TABLE 11B (TEXAS)

GUIDANCE COUNSELORS/PSYCHOLOGISTS: SAMPLE = 47 COUNT = 241

TOPIC 1	TOPIC 2	N	% SAMPLE
Couns., Guid. & Psych.	Group Processes	17	0.36
Couns., Guid. & Psych.		11	0.23
Couns., Guid. & Psych.	Career Training	10	0.21
Couns., Guid. & Psych.	Emotional Disturbance	10	0.21
Scheduling		9	0.19
Testing & Assessment		7	0.15
Couns., Guid. & Psych.	Racial/Cultural Dis.	6	0.13

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Couns., Guid. & Psych.	81	0.19
Testing & Assessment	36	0.09
Career Training	26	0.06
Group Processes	25	0.06
Scheduling	19	0.05
Racial/Cultural Dis.	19	0.05
Research	18	0.04
Tchr./Stud. Relations	17	0.04
Performance	16	0.04

INFORMATION NEEDS TABLE 11C (NORTH CAROLINA) - 41

GUIDANCE COUNSELORS/PSYCHOLOGISTS: SAMPLE = 51 COUNT = 238

TOPIC 1	TOPIC 2	N	% SAMPLE
Couns., Guid. & Psych.		14	0.27
Couns., Guid. & Psych.	Emotional Disturbance	10	0.20
Couns., Guid. & Psych.	Motivation	10	0.20
School/Comm. Relations		10	0.20
Testing & Assessment		10	0.20
Couns., Guid. & Psych.	Group Processes	9	0.18
Curric. Plng. & Dev.		8	0.16
Couns., Guid. & Psych.	Career Training	7	0.14
Scheduling		7	0.14
Couns., Guid. & Psych.	Current Social Problems	6	0.12
Career Training		6	0.12

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Couns., Guid. & Psych.	75	0.19
Testing & Assessment	35	0.09
Motivation	22	0.06
Career Training	20	0.05
Current Social Problems	17	0.04
Emotional Disturbance	17	0.04
Group Processes	17	0.04
Curric. Plng. & Dev.	16	0.04
Tchr./Stud. Relations	16	0.04

INFORMATION NEEDS TABLE 12A (13 STATES)

INSTRUCTIONAL RESOURCES PERSONNEL: SAMPLE = 478 COUNT = 1973

TOPIC 1	TOPIC 2	N	% SAMPLE
Educ. Media Serv.		215	0.45
Library Services		210	0.44
Curric. Plng. & Dev.		72	0.15
Facil. Plng. & Admin.		45	0.09
Pre/In-Service Tng.		42	0.09
Teaching Techniques		40	0.08
Library Services	Current Social Problems	38	0.08
Educ. Media Serv.	Current Social Problems	37	0.08
Educ. Media Serv.	Learning	36	0.08
Library Services	Racial/Cultural Dis.	29	0.06

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Library Services	546	0.18
Educ. Media Serv.	475	0.15
Curric. Plng. & Dev.	174	0.06
Current Social Problems	142	0.05
Teaching Techniques	120	0.04
Motivation	108	0.04
Learning	107	0.03
Reading	103	0.03
Career Training	92	0.03
Pre/In-Service Tng.	86	0.03

INFORMATION NEEDS TABLE 12B (TEXAS) - 43

INSTRUCTIONAL RESOURCES PERSONNEL: SAMPLE = 44 COUNT = 187

TOPIC 1	TOPIC 2	N	% SAMPLE
Library Services		25	0.57
Educ. Media Serv.		19	0.43
Library Services	Racial/Cultural Dis.	7	0.16
Current Social Problems		6	0.14
Educ. Media Serv.	Reading	4	0.09
Library Services	Current Social Problems	4	0.09

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Library Services	59	0.20
Educ. Media Serv.	42	0.14
Reading	17	0.06
Current Social Problems	15	0.05
Teaching Techniques	13	0.04
Motivation	13	0.04
Racial/Cultural Dis.	13	0.04
Research	11	0.04
Tchr./Stud. Relations	10	0.03

INFORMATION NEEDS TABLE 12C (NORTH CAROLINA) - 44

INSTRUCTIONAL RESOURCES PERSONNEL: SAMPLE = 80 COUNT = 320

TOPIC 1	TOPIC 2	N	% SAMPLE
Educ. Media Serv.		30	0.38
Library Services		26	0.32
Curric. Plng. & Dev.		11	0.14
Educ. Media Serv.	Motivation	8	0.10
Library Services	Current Social Problems	8	0.10
Library Services	Learning	8	0.10
Library Services	Motivation	8	0.10
Tchr./Stud. Relations		8	0.10
Educ. Media Serv.	Current Social Problems	7	0.09
Library Services	Reading	6	0.07

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Library Services	103	0.20
Educ. Media Serv.	86	0.16
Current Social Problems	28	0.05
Learning	22	0.04
Motivation	22	0.04
Curric. Plng. & Dev.	21	0.04
Reading	21	0.04
Research	16	0.03
Teaching Techniques	14	0.03
English Language Skills	14	0.03
Racial/Cultural Dis.	14	0.03

INFORMATION NEEDS TABLE 13A (13 STATES)

CURRICULUM SUPERVISORS: SAMPLE = 204 COUNT = 1014

TOPIC 1	TOPIC 2	N	% SAMPLE
Curric. Plng. & Dev.		42	0.21
Pre/In-Service Tng.		40	0.20
Curric. Plng. & Dev.	Soc. Studies, Soc. Sci.	28	0.14
Early Chldhd. Educ.		24	0.12
Teaching Techniques		24	0.12
Curric. Plng. & Dev.	Reading	20	0.10
Testing & Assessment	-"	19	0.09
Curric. Plng. & Dev.	Career Training	16	0.08
Curric. Plng. & Dev.	English Language Skills	15	0.07
Teaching Techniques	Soc. Studies, Soc. Sci.	15	0.07

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	236	0.13
Teaching Techniques	136	0.08
Pre/In-Service Tng.	115	0.07
Soc. Studies, Soc. Sci.	79	0.05
Testing & Assessment	76	0.04
Early Chldhd. Educ.	74	0.04
Career Training	64	0.04
Performance	59	0.03
Research	58	0.03
Reading	58	0.03

INFORMATION NEEDS TABLE 13B (TEXAS)

CURRICULUM SUPERVISORS: SAMPLE = 16 COUNT = 85

TOPIC 1	TOPIC 2	N	% SAMPLE
Curric. Plng. & Dev.		3	0.19
Curric. Plng. & Dev.	Nat. & Phys. Sciences	3	0.19
Early Chldhd. Educ.		3	0.19
Pre/In-Service Tng.		3	0.19
Teaching Techniques	Reading	3	0.19

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	23	0.15
Teaching Techniques	16	0.11
Pre/In-Service Tng.	11	0.07
Career Training	10	0.07
Testing & Assessment	7	0.05
Reading	7	0.05
Early Chldhd. Educ.	6	0.04
English Language Skills	6	0.04
Nat. & Phys. Sciences	6	0.04

INFORMATION NEEDS TABLE 13C (NORTH CAROLINA)

CURRICULUM SUPERVISORS: SAMPLE = 26 COUNT = 121

TOPIC 1	TOPIC 2	N	% SAMPLE
Curric. Plng. & Dev.		6	0.23
Curric. Plng. & Dev.	Reading	4	0.15
Grading	Performance	4	0.15
Pre/In-Service Tng.		4	0.15
Testing & Assessment		4	0.15
Curric. Plng. & Dev.	Soc. Studies, Soc. Sci.	3	0.12
Early Chldhd. Educ.		3	0.12
Grading		3	0.12
Special Education	Mental Retardation	3	0.12
Teaching Techniques	English Language Skills	3	0.12
Teaching Techniques	Soc. Studies, Soc. Sci.	3	0.12
Teaching Techniques	Learning	3	0.12

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	23	0.11
Teaching Techniques	22	0.10
Early Chldhd. Educ.	14	0.07
Grading	13	0.06
Reading	10	0.05
Performance	10	0.05
Pre/In-Service Tng.	9	0.04
Soc. Studies, Soc. Sci.	9	0.04
Mental Retardation	9	0.04

INFORMATION NEEDS TABLE 14A (13 STATES) - 48

PROGRAM SPECIALISTS/CONSULTANTS: SAMPLE = 212 COUNT = 1068

TOPIC 1	TOPIC 2	N	% SAMPLE
Pre/In-Service Tng.		37	0.17
Curric. Plng. & Dev.		26	0.12
Teaching Techniques		19	0.09
Curric. Plng. & Dev.	Art, Music, Humanities	15	0.07
Finance Plng. & Admin.		14	0.07
Policy Planning		13	0.06
Teaching Techniques	Motivation	13	0.06
Testing & Assessment		13	0.06
Curric. Plng. & Dev.	Career Training	12	0.06
Educ. Admin. (Gen.)		12	0.06

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	167	0.09
Pre/In-Service Tng.	138	0.07
Teaching Techniques	130	0.07
Testing & Assessment	99	0.05
Research	83	0.04
Reading	68	0.04
Early Chldhd. Educ.	66	0.03
Art, Music, Humanities	63	0.03
Performance	59	0.03
Motivation	55	0.03

INFORMATION NEEDS TABLE 14B (TEXAS)

PROGRAM SPECIALISTS/CONSULTANTS: SAMPLE = 14 COUNT = 55

TOPIC 1	TOPIC 2	N	% SAMPLE
Curric. Plng. & Dev.	Performance	3	0.21
Policy Planning		3	0.21

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	7	0.08
Pre/In-Service Tng.	7	0.08
Teaching Techniques	6	0.07
Performance	6	0.07
Testing & Assessment	5	0.06
Reading	5	0.06
Learning	5	0.06
Foreign Languages	4	0.04
Bilingual Education	3	0.03
Early Chldhd. Educ.	3	0.03
Grading	3	0.03
Policy Planning	3	0.03

INFORMATION NEEDS TABLE 14C (NORTH CAROLINA) - 50

PROGRAM SPECIALISTS/CONSULTANTS: SAMPLE = 22 COUNT = 93

TOPIC 1	TOPIC 2	N	% SAMPLE
Testing & Assessment	Mental Retardation	3	0.14

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	18	0.10
English Language Skills	13	0.08
Pre/In-Service Tng.	12	0.07
Teaching Techniques	11	0.06
Research	10	0.06
Art, Music, Humanities	9	0.05
Mathematics	8	0.05
Mental Retardation	7	0.04
Early Chldhd. Educ.	6	0.03
Grading	6	0.03
Testing & Assessment	6	0.03

INFORMATION NEEDS TABLE 15A (13 STATES) - 51

PRESCH./ELEM. SERVICE PERSONNEL: SAMPLE = 225 COUNT = 937

TOPIC 1	TOPIC 2	N	% SAMPLE
Library Services		67	0.30
Educ. Media Serv.		63	0.28
Curric. Plng. & Dev.		16	0.07
School/Comm. Relations		16	0.07
Educ. Media Serv.	Current Social Problems	15	0.07
Library Services	Reading	15	0.07
Couns., Guid. & Psych.	Emotional Disturbance	14	0.06
Couns., Guid. & Psych.	Group Processes	14	0.06
Facil. Plng. & Admin.		11	0.05
Pre/In-Service Tng.		11	0.05

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Library Services	187	0.12
Educ. Media Serv.	136	0.08
Couns., Guid. & Psych.	80	0.05
Teaching Techniques	74	0.05
Early Chldhd. Educ.	73	0.05
Reading	71	0.04
Learning	70	0.04
Motivation	67	0.04
Curric. Plng. & Dev.	63	0.04
Racial/Cultural Dis.	55	0.03

INFORMATION NEEDS TABLE 15B (TEXAS) - 52

PRESCH./ELEM. SERVICE PERSONNEL: SAMPLE = 17 COUNT = 77

TOPIC 1	TOPIC 2	N	% SAMPLE
Library Services		9	0.53
Educ. Media Serv.		8	0.47
Library Services	Racial/Cultural Dis.	3	0.18

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Library Services	21	0.17
Educ. Media Serv.	10	0.08
Reading	9	0.07
Teaching Techniques	7	0.06
Motivation	7	0.06
Racial/Cultural Dis.	7	0.06
Tchr./Stud. Relations	5	0.04
Ability	5	0.04
Group Processes	5	0.04

INFORMATION NEEDS TABLE 15C (NORTH CAROLINA) - 53

PRESCH./ELEM. SERVICE PERSONNEL SAMPLE = 35 COUNT = 143

TOPIC 1	TOPIC 2	N	% SAMPLE
Educ. Media Serv.		8	0.23
Library Services		5	0.14
Library Services	Reading	5	0.14
Library Services	Learning	5	0.14
Library Services	Motivation	4	0.11
School/Comm. Relations		4	0.11

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Library Services	48	0.19
Educ. Media Serv.	28	0.11
Learning	13	0.05
Couns., Guid. & Psych.	12	0.05
Reading	12	0.05
Racial/Cultural Dis.	12	0.05
Early Chldhd. Educ.	10	0.04
English Language Skills	10	0.04
Group Processes	10	0.04
Motivation	9	0.04

INFORMATION NEEDS TABLE 16A (13 STATES)

SECONDARY SERVICE PERSONNEL: SAMPLE = 594 COUNT = 2718

TOPIC 1	TOPIC 2	N	% SAMPLE
Couns., Guid. & Psych.	Group Processes	116	0.20
Educ. Media Serv.		107	0.18
Library Services		106	0.18
Couns., Guid. & Psych.	Career Training	80	0.13
Couns., Guid. & Psych.	Emotional Disturbance	80	0.13
Couns., Guid. & Psych.		69	0.12
Couns., Guid. & Psych.	Motivation	62	0.10
Scheduling		60	0.10
Curric. Plng. & Dev.		59	0.10
School/Comm. Relations		55	0.09

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Couns., Guid. & Psych.	607	0.13
Library Services	279	0.06
Career Training	259	0.06
Educ. Media Serv.	250	0.05
Testing & Assessment	221	0.05
Group Processes	216	0.05
Motivation	214	0.05
Current Social Problems	204	0.04
Tchr./Stud. Relations	177	0.04
Curric. Plng. & Dev.	167	0.04

INFORMATION NEEDS TABLE 16B (TEXAS) - 55

SECONDARY SERVICE PERSONNEL: SAMPLE = 63 COUNT = 301

TOPIC 1	TOPIC 2	N	% SAMPLE
Couns., Guid. & Psych.	Group Processes	14	0.22
Library Services		13	0.21
Couns., Guid. & Psych.		10	0.16
Couns., Guid. & Psych.	Career Training	10	0.16
Couns., Guid. & Psych.	Emotional Disturbance	9	0.14
Scheduling		9	0.14
Educ. Media Serv.		7	0.11
Tchr./Stud. Relations		7	0.11

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Couns., Guid. & Psych.	76	0.15
Testing & Assessment	33	0.06
Library Services	29	0.06
Career Training	27	0.05
Educ. Media Serv.	25	0.05
Research	23	0.04
Tchr./Stud. Relations	22	0.04
Group Processes	22	0.04
Racial/Cultural Dis.	22	0.04
Current Social Problems	21	0.04
Motivation	21	0.04

INFORMATION NEEDS TABLE 16C (NORTH CAROLINA)

SECONDARY SERVICE PERSONNEL: SAMPLE = 82 COUNT = 349

TOPIC 1	TOPIC 2	N	% SAMPLE
Library Services		20	0.24
Educ. Media Serv.		17	0.21
Curric. Plng. & Dev.		16	0.20
Couns., Guid. & Psych.		12	0.15
School/Comm. Relations		10	0.12
Couns., Guid. & Psych.	Emotional Disturbance	9	0.11
Couns., Guid. & Psych.	Motivation	9	0.11
Scheduling		9	0.11
Tchr./Stud. Relations		9	0.11
Testing & Assessment		9	0.11

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Couns., Guid. & Psych.	65	0.12
Library Services	47	0.08
Educ. Media Serv.	41	0.07
Current Social Problems	33	0.06
Motivation	31	0.06
Testing & Assessment	29	0.05
Career Training	24	0.04
Curric. Plng. & Dev.	22	0.04
Tchr./Stud. Relations	20	0.04
School/Comm. Relations	17	0.03
Emotional Disturbance	17	0.03

INFORMATION NEEDS TABLE 17A (13 STATES)

NON-SCHOOL SERVICE PERSONNEL: SAMPLE = 300 COUNT = 1467

TOPIC 1	TOPIC 2	N	% SAMPLE
Educ. Media Serv.		60	0.20
Pre/In-Service Tng.		50	0.17
Curric. Plng. & Dev.		44	0.15
Library Services		41	0.14
Teaching Techniques		41	0.14
Facil. Plng. & Admin.		23	0.08
Early Chldhd. Educ.		18	0.06
Finance Plng. & Admin.		18	0.06
School/Comm. Relations		18	0.06
Educ. Admin. (Gen.)		16	0.05
Research		16	0.05

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	206	0.08
Pre/In-Service Tng.	162	0.07
Educ. Media Serv.	142	0.06
Teaching Techniques	134	0.05
Testing & Assessment	109	0.04
Research	104	0.04
Library Services	87	0.04
Learning	80	0.03
Performance	77	0.03
Motivation	69	0.03

INFORMATION NEEDS TABLE 17B (TEXAS) - 58

NON-SCHOOL SERVICE PERSONNEL: SAMPLE = 25 COUNT = 105

TOPIC 1	TOPIC 2	N	% SAMPLE
Educ. Media Serv.		7	0.28
Library Services		4	0.16
Pre/In-Service Tng.		4	0.16
Teaching Techniques		4	0.16
Couns., Guid. & Psych.	Group Processes	3	0.12
Curric. Plng. & Dev.	Performance	3	0.12
Educ. Admin. (Gen.)		3	0.12
Policy Planning		3	0.12

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Educ. Media Serv.	14	0.09
Pre/In-Service Tng.	11	0.07
Library Services	10	0.06
Curric. Plng. & Dev.	9	0.05
Teaching Techniques	9	0.05
Testing & Assessment	8	0.05
Performance	8	0.05
Learning	7	0.04
Couns., Guid. & Psych.	6	0.04
Early Chldhd. Educ.	6	0.04
Research	6	0.04

INFORMATION NEEDS TABLE 17C (NORTH CAROLINA)

NON-SCHOOL SERVICE PERSONNEL: SAMPLE = 36 COUNT = 159

TOPIC 1	TOPIC 2	N	% SAMPLE
Educ. Media Serv.		7	0.19
Teaching Techniques		4	0.11
Couns., Guid. & Psych.	Career Training	3	0.08
Curric. Plng. & Dev.	English Language Skills	3	0.08
Curric. Plng. & Dev.	Mathematics	3	0.08
Facil. Plng. & Admin.	Library Services	3	0.08
Scheduling		3	0.08
Testing & Assessment	Mental Retardation	3	0.08

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	28	0.10
Educ. Media Serv.	25	0.09
Teaching Techniques	17	0.06
Pre/In-Service Tng.	14	0.05
English Language Skills	13	0.05
Library Services	12	0.04
Art, Music, Humanities	11	0.04
Couns., Guid. & Psych.	10	0.03
Research	10	0.03
Mathematics	10	0.03

INFORMATION FORMS TABLE 18A (13 STATES)

PREFERRED INFORMATION FORMS BY PERSONNEL TYPE (PERCENT)

PERSONNEL TYPE	N	ORIGINAL RESEARCH	RESEARCH REVIEWS	CURRENT AWARENESS	CASE STUDIES	HOW-TO GUIDANCE
ALL TEACHERS	2244	0.09	0.42	0.45	0.46	0.77
PRESCHOOL-ELEM. TEACHERS	1149	0.05	0.36	0.42	0.45	0.81
SECONDARY TEACHERS	1035	0.10	0.47	0.48	0.47	0.72
ALL PRINCIPALS	701	0.09	0.68	0.49	0.46	0.68
ALL ADMIN.OTHER THAN PRINCIPALS	748	0.11	0.71	0.50	0.44	0.62
PRESCHOOL-ELEM. ADMINISTRATORS	404	0.08	0.70	0.49	0.41	0.70
SECONDARY ADMINISTRATORS	409	0.08	0.67	0.46	0.49	0.66
NON-SCHOOL ADMINISTRATORS	588	0.12	0.71	0.51	0.44	0.60
GUIDANCE COUNS. PSYCHOLOGISTS	443	0.12	0.63	0.54	0.58	0.84
INSTR. SERVICE PERSONNEL	479	0.11	0.53	0.64	0.45	0.80
CURRICULUM SUPERVISORS	204	0.13	0.79	0.56	0.49	0.74
PROGRAM SPEC. CONSULTANTS	212	0.19	0.77	0.54	0.48	0.67
PRESCHOOL-ELEM. SERVICE PERS.	226	0.11	0.50	0.56	0.49	0.84
SECONDARY SERVICE PERS.	594	0.10	0.58	0.61	0.52	0.82
NON-SCHOOL SERVICE PERS.	301	0.19	0.76	0.55	0.50	0.69

PREFERRED INFORMATION FORMS BY PERSONNEL TYPE (PERCENT)

PERSONNEL TYPE	N	ORIGINAL RESEARCH	RESEARCH REVIEWS	CURRENT AWARENESS	CASE STUDIES	HOW-TO GUIDANCE
ALL TEACHERS	261	0.09	0.38	0.44	0.53	0.77
PRESCHOOL-ELEM. TEACHERS	138	0.09	0.35	0.38	0.52	0.80
SECONDARY TEACHERS	122	0.10	0.40	0.52	0.54	0.73
ALL PRINCIPALS	63	0.10	0.63	0.43	0.48	0.68
ALL ADMIN.OTHER THAN PRINCIPALS	64	0.16	0.63	0.58	0.36	0.61
PRESCHOOL-ELEM. ADMINISTRATORS	37	0.11	0.62	0.41	0.41	0.73
SECONDARY ADMINISTRATORS	39	0.05	0.69	0.51	0.56	0.74
NON-SCHOOL ADMINISTRATORS	51	0.20	0.59	0.57	0.31	0.51
GUIDANCE COUNS. PSYCHOLOGISTS	47	0.15	0.68	0.64	0.66	0.91
INSTR. SERVICE PERSONNEL	44	0.07	0.4	0.61	0.39	0.82
CURRICULUM SUPERVISORS	16	0.13	0.88	0.69	0.56	0.88
PROGRAM SPEC. CONSULTANTS	14	0.21	0.64	0.57	0.43	0.71
PRESCHOOL-ELEM. SERVICE PERS.	17	0.12	0.29	0.59	0.41	0.94
SECONDARY SERVICE PERS.	63	0.11	0.59	0.63	0.52	0.87
NON-SCHOOL SERVICE PERS.	25	0.16	0.72	0.60	0.56	0.72

INFORMATION FORMS TABLE 18C (NORTH CAROLINA)

PREFERRED INFORMATION FORMS BY PERSONNEL TYPE (PERCENT)

PERSONNEL TYPE	N	ORIGINAL RESEARCH	RESEARCH REVIEWS	CURRENT AWARENESS	CASE STUDIES	HOW-TO GUIDANCE
ALL TEACHERS	247	0.10	0.36	0.40	0.51	0.77
PRESCHOOL-ELEM. TEACHERS	139	0.04	0.34	0.38	0.46	0.78
SECONDARY TEACHERS	108	0.17	0.40	0.44	0.56	0.76
ALL PRINCIPALS	75	0.11	0.53	0.44	0.53	0.64
ALL ADMIN.OTHER THAN PRINCIPALS	61	0.07	0.66	0.38	0.39	0.66
PRESCHOOL-ELEM. ADMINISTRATORS	35	0.06	0.63	0.43	0.51	0.66
SECONDARY ADMINISTRATORS	46	0.15	0.46	0.43	0.50	0.61
NON-SCHOOL ADMINISTRATORS	53	0.06	0.66	0.38	0.42	0.68
GUIDANCE COUNS. PSYCHOLOGISTS	51	0.14	0.51	0.45	0.69	0.90
INSTR. SERVICE PERSONNEL	80	0.16	0.57	0.57	0.35	0.67
CURRICULUM SUPERVISORS	26	0.12	0.62	0.50	0.42	0.73
PROGRAM SPEC. CONSULTANTS	22	0.14	0.73	0.36	0.64	0.68
PRESCHOOL-ELEM. SERVICE PERS.	35	0.09	0.43	0.49	0.49	0.83
SECONDARY SERVICE PERS.	82	0.17	0.57	0.56	0.50	0.77
NON-SCHOOL SERVICE PERS.	36	0.17	0.72	0.39	0.53	0.64

Discussion of the state surveys, and particularly the 13-state aggregate data, continues in subsequent chapters. When we broach the methodological question of interstudy convergence, we need a way of presenting data in comparable format across all studies. Several studies do not permit tabulation within professional specialties. Instead, they profile the pooled information needs of all respondents.

This common denominator of comparability requires a 13-state table that has not been displayed yet. Table 19 (next page) presents the pooled responses of all personnel in all states, a total of 5,078 cases and 22,522 topic mentions.

Note in Table 19 that, although "school/community relations" was the topic most often mentioned by itself, it was seldom combined with other topics. Therefore its total frequency does not place it among the ranked topic totals at the bottom of the table.

"Teaching techniques," which appears only fifth in any form on the juxtaposed list, stands first among the ranked topic totals because respondents combined "teaching techniques" with a great range of other topics, leading to 2,872 mentions among the 5,078 respondents, only 2,244 of whom are teachers.

INFORMATION NEEDS TABLE 19 (13 STATES)

ALL PERSONNEL TYPES: SAMPLE = 5078 COUNT = 22522

TOPIC 1	TOPIC 2	N	% SAMPLE
School/Comm. Relations		508	0.10
Curric. Plng. & Dev.		453	0.09
Educ. Media Serv.		387	0.08
Pre/In-Service Tng.		368	0.07
Teaching Techniques	Motivation	342	0.07
Educ. Admin. (Gen.)		338	0.07
Teaching Techniques		299	0.06
Tchr./Stud. Relations		294	0.06
Couns., Guid. & Psych.	Emotional Disturbance	288	0.06
Scheduling		288	0.06

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	2872	0.07
Curric. Plng. & Dev.	2373	0.06
Testing & Assessment	1792	0.05
Motivation	1650	0.04
Couns., Guid. & Psych.	1493	0.04
Tchr./Stud. Relations	1408	0.04
Reading	1325	0.03
Performance	1266	0.03
Learning	1229	0.03
Educ. Media Serv.	1154	0.03

IV. THE "QUERY FOLLOWUP" STUDY

Two studies in this project involve groups that may be "sensitized" to educational information needs. Those who have written query letters to ERIC clearinghouses and other information centers are the sampling universe of the "query followup" study. Their counterparts, the information specialists in clearinghouses and information centers who respond to queries, are the sampling universe of the "information specialists" study (Chap. V).

Each year the ERIC clearinghouses and other information receive thousands of requests for information. The file of such requests is a mixed bag, with a small proportion of "thoughtful" queries and a large proportion of perfunctory requests for "information on educational research," etc.

This study is limited to senders of "thoughtful" queries, which can be operationally defined as any query that specifies and delimits the sender's area of information concern. When the "Sensing Network" project was being designed, preliminary screening of queries at the Stanford ERIC clearinghouse assured us that "thoughtul" queries are easily distinguished by their length and specificity from the mass of perfunctory requests.

INSTRUMENT. The cover letter of the basic questionnaire was modified for this study to include the paragraph:

> As part of this study we are sending questionnaires to persons like yourself who have requested information from educational clearinghouses and information centers. We feel that these people who have recently dealt with an information problem may be more sensitive to educational information needs in general.

The questionnaire itself -- question texts and responses -- was not changed in any way.

SAMPLING AND STUDY ADMINISTRATION. All ERIC clearinghouses and a number of state/local information centers were asked to send us selected letters from their recent query activity. The burden of identifying "thoughtful" queries was imposed on the clearinghouses and information centers because of the prohibitive cost of shipping all queries to Stanford for screening.

Various clearinghouses and state/local information centers complied with our request and sent files of "thoughtful" queries from which we extracted names and addresses for the query followup mailing. By the time of our late-spring cutoff, six clearinghouses and two information centers had contributed to the sample. They are listed in the ACKNOWLEDGMENTS section at the beginning of this report.

NUMBER OF RESPONSES. The close of school at the end of the 1971-1972 academic year prevented us from properly following up nonresponse in this study. Of the approximately 650 questionnaires mailed, 377 were: (a) returned in usable form, (b) classifiable into one of the 15 educational specialties on which the comparative analysis is based.

FINDINGS. An overview of information needs, as assessed by the query followup method, is presented in Table 20.

The pattern of Table 20 is curious enough to raise questions of sampling bias. The primacy of "teaching techniques" found in Table 19 is missing. Table 20 resembles state survey tables in Chapter III that come from administrators and service personnel. Is it true that the query followup method oversamples other personnel categories at the expense of teachers?

The answer seems to be yes. In the 13-state aggregate data, 44 per cent of all respondents are teachers. In the query followup study, only 15 per cent of all respondents are teachers.

Oversampling per se is not a validity issue. It is common practice in field surveys to oversample any group that requires more detailed analysis than sampling at population strength would permit. However, it is essential that such a group subsequently be kept by itself in the analysis or weighted with other groups according to the reciprocal of the sampling fraction of each.

In the query followup study it was possible to collect data on professional specialties that permits separate tabulation of each group -- each oversampled group by itself, each undersampled group by itself. Tables 21 through 32 present the separate tabulations (three groups were lost because of insufficient cases).

INFORMATION NEEDS TABLE 20 (QUERY FOLLOWUP) - 67

ALL PERSONNEL TYPES: SAMPLE = 377 COUNT = 1853

TOPIC 1	TOPIC 2	N	% SAMPLE
Curric. Plng. & Dev.		59	0.16
Educ. Admin. (Gen.)		56	0.15
Pre/In-Service Tng.		45	0.12
Educ. Media Serv.		40	0.11
School/Comm. Relations		37	0.10
Facil. Plng. & Admin.		35	0.09
Research		32	0.08
Finance Plng. & Admin.		31	0.08
Teaching Techniques		27	0.07
Testing & Assessment		26	0.07

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	235	0.08
Teaching Techniques	187	0.06
Research	179	0.06
Testing & Assessment	146	0.05
Pre/In-Service Tng.	136	0.04
Motivation	120	0.04
Performance	114	0.04
Career Training	111	0.04
Learning	102	0.03
Couns., Guid. & Psych.	98	0.03

Although we must remember the small sample that is represented in each query followup table, it is instructive to note differences between Table 21 and its counterparts from the state surveys, Tables 3A, 3B, and 3C. The query followup teachers express great interest in "curriculum planning and development" and less interest in "teaching techniques" (although the latter still leads the ranked topic totals). The query followup teachers also differ from teachers in the state surveys by placing "research" third among the ranked topic totals. "Research" does not even appear in Tables 3A, 3B, and 3C.

Table 25 reports the largest sample of administrators in the query followup study. Comparing this table with Tables 7A, 7B, and 7C, we see that the query followup administrators do not differ from state survey adminisrators as much as the two samples of teachers do. However, query followup administrators do mention "research" quite often, and this topic does not appear in Tables 7A, 7B, and 7C.

Further discussion of the query followup method appears in Chapters VIII and IX.

INFORMATION NEEDS TABLE 21 (QUERY FOLLOWUP)

ALL TEACHERS: SAMPLE = 59 COUNT = 306

TOPIC 1	TOPIC 2	N	% SAMPLE
Curric. Plng. & Dev.		8	0.14
Teaching Techniques	Reading	6	0.10
Curric. Plng. & Dev.	English Language Skills	5	0.08
Curric. Plng. & Dev.	Soc. Studies, Soc. Sci.	5	0.08
Teaching Techniques	English Language Skills	5	0.08
Teaching Techniques	Motivation	5	0.08

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	52	0.09
Curric. Plng. & Dev.	42	0.08
Research	37	0.07
English Language Skills	24	0.04
Motivation	23	0.04
Reading	21	0.04
Learning	21	0.04
Tchr./Stud. Relations	20	0.04
Testing & Assessment	19	0.03
Performance	19	0.03

INFORMATION NEEDS TABLE 22 (QUERY FOLLOWUP)

PRESCHOOL/ELEMENTARY TEACHERS: SAMPLE = 22 COUNT = 103

TOPIC 1	TOPIC 2	N	% SAMPLE
Curric. Plng. & Dev.		4	0.18
Early Chldhd. Educ.	Learning	4	0.18
Research	Reading	4	0.18
Teaching Techniques	Reading	4	0.18
Early Chldhd. Educ.	Reading	3	0.14
Grading	Performance	3	0.14
Teaching Techniques	Motivation	3	0.14

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	20	0.10
Reading	17	0.09
Early Chldhd. Educ.	16	0.08
Research	14	0.07
Performance	11	0.06
Curric. Plng. & Dev.	10	0.05
Learning	8	0.04
Testing & Assessment	7	0.04
Mathematics	7	0.04
Soc. Studies, Soc. Sci.	7	0.04
Motivation	7	0.04

INFORMATION NEEDS TABLE 23 (QUERY FOLLOWUP) - 71

SECONDARY TEACHERS: SAMPLE = 21 COUNT = 103

TOPIC 1	TOPIC 2	N	% SAMPLE
Curric. Plng. & Dev.	English Language Skills	4	0.19
Grading	Motivation	3	0.14
Teaching Techniques	English Language Skills	3	0.14

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	20	0.11
English Language Skills	18	0.09
Teaching Techniques	15	0.08
Tchr./Stud. Relations	10	0.05
Motivation	10	0.05
Special Education	9	0.05
Educ. Media Serv.	7	0.04
Current Social Problems	7	0.04
Grading	6	0.03
Testing & Assessment	6	0.03
Nat. & Phys. Sciences	6	0.03
Attitude	6	0.03

INFORMATION NEEDS TABLE 24 (QUERY FOLLOWUP)

ALL PRINCIPALS: SAMPLE = 17 COUNT = 94

TOPIC 1	TOPIC 2	N	% SAMPLE
Curric. Plng. & Dev.		5	0.29
Educ. Admin. (Gen.)		3	0.18
Tchr./Stud. Relations	Motivation	3	0.18
Teaching Techniques	Learning	3	0.18

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	16	0.10
Curric. Plng. & Dev.	11	0.07
Early Chldhd. Educ.	10	0.06
Learning	10	0.06
Pre/In-Service Tng.	8	0.05
Tchr./Stud. Relations	8	0.05
Testing & Assessment	8	0.05
Reading	7	0.05
Performance	7	0.05
Educ. Admin. (Gen.)	6	0.04
Motivation	6	0.04

INFORMATION NEEDS TABLE 25 (QUERY FOLLOWUP) - 73

ALL ADMIN. OTHER THAN PRINCIPALS: SAMPLE = 76 COUNT = 369

TOPIC 1	TOPIC 2	N	% SAMPLE
Educ. Admin. (Gen.)		20	0.26
Facil. Plng. & Admin.		16	0.21
Finance Plng. & Admin.		14	0.18
Policy Planning		10	0.13
Pre/In-Service Tng.		10	0.13
Curric. Plng. & Dev.		9	0.12
Curric. Plng. & Dev.	Career Training	9	0.12
Educ. Media Serv.		9	0.12
Personnel Admin.		9	0.12
Research		9	0.12
Testing & Assessment		9	0.12

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	41	0.07
Pre/In-Service Tng.	35	0.06
Couns., Guid. & Psych.	31	0.05
Career Training	31	0.05
Performance	30	0.05
Educ. Admin. (Gen.)	28	0.05
Testing & Assessment	28	0.05
Research	26	0.04
Motivation	26	0.04

INFORMATION NEEDS TABLE 26 (QUERY FOLLOWUP) - 74

PRESCH./ELEM. PRINCIPALS/ADMIN: SAMPLE = 16 COUNT = 95

TOPIC 1	TOPIC 2	N	% SAMPLE
Pre/In-Service Tng.	Group Processes	3	0.19
Teaching Techniques	Learning	3	0.19
Teaching Techniques	Performance	3	0.19

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Early Chldhd. Educ.	23	0.13
Learning	12	0.07
Curric. Plng. & Dev.	11	0.06
Teaching Techniques	10	0.06
Pre/In-Service Tng.	9	0.05
Testing & Assessment	8	0.05
Performance	8	0.05
Tchr./Stud. Relations	7	0.04
Attitude	7	0.04
Emotional Disturbance	7	0.04

INFORMATION NEEDS TABLE 27 (QUERY FOLLOWUP) - 75

SECONDARY PRINCIPALS/ADMINISTRATORS: SAMPLE = 12 COUNT = 53

TOPIC 1	TOPIC 2	N	% SAMPLE
Curric. Plng. & Dev.		4	0.33
Educ. Admin. (Gen.)		3	0.25
Facil. Plng. & Admin.		3	0.25
Personnel Admin.		3	0.25
Pre/In-Service Tng.		3	0.25
Scheduling		3	0.25
Teaching Techniques		3	0.25

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	8	0.11
Curric. Plng. & Dev.	7	0.10
Pre/In-Service Tng.	7	0.10
Motivation	5	0.07
Personnel Admin.	4	0.06
Scheduling	4	0.06
Educ. Admin. (Gen.)	3	0.04
Facil. Plng. & Admin.	3	0.04
English Language Skills	3	0.04

INFORMATION NEEDS TABLE 28 (QUERY FOLLOWUP) - 76

NON-SCHOOL ADMINISTRATORS: SAMPLE = 43 COUNT = 215

TOPIC 1	TOPIC 2	N	% SAMPLE
Educ. Admin. (Gen.)		11	0.26
Finance Plng. & Admin.		10	0.23
Facil. Plng. & Admin.		9	0.21
Curric. Plng. & Dev.		8	0.19
Research		8	0.19
Educ. Media Serv.		7	0.16
Curric. Plng. & Dev.	Career Training	6	0.14
Personnel Admin.		6	0.14
Policy Planning		6	0.14
Pre/In-Service Tng.		6	0.14
School/Comm. Relations		6	0.14

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	28	0.08
Pre/In-Service Tng.	21	0.06
Testing & Assessment	19	0.06
Performance	18	0.05
Career Training	17	0.05
Research	14	0.04
Facil. Plng. & Admin.	13	0.04
Finance Plng. & Admin.	13	0.04
School/Comm. Relations	13	0.04
Motivation	13	0.04

INFORMATION NEEDS TABLE 29 (QUERY FOLLOWUP) - 77

INSTRUCTIONAL SERVICE PERSONNEL: SAMPLE = 16 COUNT = 71

TOPIC 1	TOPIC 2	N	% SAMPLE
Educ. Media Serv.		8	0.50
Library Services		7	0.44
Curric. Plng. & Dev.		3	0.19
Facil. Plng. & Admin.		3	0.19

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Educ. Media Serv.	19	0.17
Library Services	9	0.08
Curric. Plng. & Dev.	7	0.06
Pre/In-Service Tng.	7	0.06
Research	6	0.05
Facil. Plng. & Admin.	5	0.04
Teaching Techniques	5	0.04
Career Training	5	0.04
Soc. Studies, Soc. Sci.	5	0.04
Motivation	5	0.04
Racial/Cultural Dis.	5	0.04

INFORMATION NEEDS TABLE 30 (QUERY FOLLOWUP) - 78

CURRICULUM SUPERVISORS: SAMPLE = 14 COUNT = 80

TOPIC 1	TOPIC 2	N	% SAMPLE
Curric. Plng. & Dev.		4	0.29
Educ. Admin. (Gen.)		4	0.29
Pre/In-Service Tng.		3	0.21

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	10	0.08
Pre/In-Service Tng.	10	0.08
Learning	10	0.08
Teaching Techniques	9	0.07
Testing & Assessment	8	0.06
English Language Skills	7	0.05
Reading	7	0.05
Research	6	0.05
Couns., Guid. & Psych.	5	0.04
Early Chldhd. Educ.	5	0.04
Motivation	5	0.04

INFORMATION NEEDS TABLE 31 (QUERY FOLLOWUP) - 79

PROGRAM SPECIALISTS/CONSULTANTS: SAMPLE = 23 COUNT = 123

TOPIC 1	TOPIC 2	N	% SAMPLE
Curric. Plng. & Dev.		3	0.13
Pre/In-Service Tng.		3	0.13
Teaching Techniques	Attitude	3	0.13
Teaching Techniques	Motivation	3	0.13
Testing & Assessment	Performance	3	0.13

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Testing & Assessment	18	0.08
Curric. Plng. & Dev.	17	0.08
Teaching Techniques	17	0.08
Pre/In-Service Tng.	15	0.07
Motivation	13	0.06
Research	11	0.05
Special Education	11	0.05
Attitude	11	0.05
Nat. & Phys. Sciences	9	0.04
Performance	9	0.04

INFORMATION NEEDS TABLE 32 (QUERY FOLLOWUP) - 80

NON-SCHOOL SERVICE PERSONNEL: SAMPLE = 28 COUNT = 132

TOPIC 1	TOPIC 2	N	% SAMPLE
Curric. Plng. & Dev.		8	0.29
Pre/In-Service Tng.		6	0.21
Early Chldhd. Educ.		4	0.14
Educ. Media Serv.		4	0.14
Library Services		3	0.11
School/Comm. Relations		3	0.11
School/Comm. Relations	Group Processes	3	0.11
Testing & Assessment		3	0.11

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	24	0.11
Pre/In-Service Tng.	15	0.07
Teaching Techniques	13	0.06
Special Education	12	0.06
Educ. Media Serv.	11	0.05
Testing & Assessment	11	0.05
Group Processes	10	0.05
Motivation	9	0.04
Career Training	8	0.04
School/Comm. Relations	7	0.03

V. THE "INFORMATION SPECIALISTS" STUDY

The possibility of this study, which was not part of our original plan, was raised in discussions with NCEC staff. It was agreed that information specialists in clearinghouses and information centers are uniquely situated to monitor educators' expressed needs. As gatekeepers of a major channel in the educational information system, information specialists are "expert informants" on what kinds of information flow to whom.

Thus, unlike the previous studies, information specialists were asked to speak not for themselves but for the clients they serve. The methodological question concerned their ability to summarize and project the needs of others.

INSTRUMENT. The basic questionnaire was slightly modified for this study. Instead of asking "What do you do?" and "What are your information needs?", it asks "What do your clients do?" and "What are their information needs?"

Additionally, the cover letter of the questionnaire was revised to include:

> We feel that persons like yourself who deal daily with the information needs of educators have insight into the kinds of information we are seeking, and can function as "expert informants" on educational information needs.
>
> On this page we would like you to describe your major audiences and, on the back, we would like you to describe the kinds of information you are most often asked for.

SAMPLING AND STUDY ADMINISTRATION. Somewhat more than 200 educational information centers can be identified in the United States. Some of these are ERIC clearinghouses; others are state agency dissemination centers; others are operated by school districts, professional associations, etc.

One copy of the "information specialists" questionnaire was sent to the director of each information center with a letter asking that the questionnaire be given to the person on the staff of the information center who deals most extensively with user requests. Questionnaires were returned directly to Stanford by the information specialists.

NUMBER OF RESPONSES. Of the approximately 175 questionnaires that were mailed out, 130 were returned in usable form.

FINDINGS. Table 33 shows the pattern of information needs projected for their clients by the 130 information specialists. As was true in Table 20, the pattern is different enough from Table 19 to raise questions of sampling bias or, in this case, "projection bias." To a great extent, Table 33 resembles Table 20 -- that is, the overall pattern projected by the information specialists seems to match the pattern reported by their clients who participated in the query followup study. In Chapter VIII we will see that affinity between the query followup and information specialists studies is confirmed in the convergence test.

Just as we have seen that the query followup sample was biased against teachers, we can ask about the nature of the information specialists' "projection bias." Are they projecting needs that are characteristic of a particular group -- for example, principals, nonschool administrators, service personnel?

This question is answered by comparing the pattern of Table 33 with the pattern of each group in the 13-state aggregate data (Table 3A, 4A, 5A, etc.). Without formalizing the procedure or giving it a name, let's just note that Table 33 contains 20 topic mentions. If another table contained the same 20 topic mentions, irrespective of rank order, we would feel that an affinity existed between the two patterns. If another table had an overlap of 15 topic mentions, or 10, or 5, we would judge the affinity in proportion to the overlap.

The winners of this crude test are Tables 14A, "program specialists/consultants," and 17A, "nonschool service personnel," both with an overlap of 14. In rank order, the need patterns closest to those projected by the information specialists are:

Program specialists/consultants (Table 14A)	14
Nonschool service personnel (17A)	14
Curriculum supervisors (13A)	13
Presch./elem. principals/administrators (8A)	11

INFORMATION NEEDS TABLE 33 (INFORMATION SPECIALIST) - 83

ALL PERSONNEL TYPES: SAMPLE = 130 COUNT = 673

TOPIC 1	TOPIC 2	N	% SAMPLE
Curric. Plng. & Dev.		33	0.25
Educ. Admin. (Gen.)		21	0.16
Educ. Media Serv.		21	0.16
Teaching Techniques		20	0.15
Pre/In-Service Tng.		19	0.15
Curric. Plng. & Dev.	Career Training	17	0.13
Finance Plng. & Admin.		16	0.12
Early Chldhd. Educ.		13	0.10
Policy Planning		12	0.09

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Curric. Plng. & Dev.	122	0.11
Teaching Techniques	80	0.07
Learning	64	0.06
Career Training	63	0.06
Research	54	0.05
Pre/In-Service Tng.	53	0.05
Educ. Media Serv.	44	0.04
Reading	38	0.03
Performance	38	0.03
Couns., Guid. & Psych.	34	0.03

Secondary principals/administrators (9A)	11
Instructional resources personnel (12A)	10
Administrators other than principals (7A)	9

At the other end of the scale, the least overlap is found between the information specialists' pattern and:

Preschool/elementary teachers (4A)	5
All teachers (3A)	5
Secondary teachers (5A)	2
Guidance counselors/psychologists (11A)	1

VI. THE "HOTLINE" STUDY

It might be said that this study proposed to eliminate: (a) the middleman of the information specialists study, (b) the obtrusive character of the state surveys and the query followup study. Our plan was to collect data while performing an information service of some value to respondents.

An Inward Wide-Area Telephone Service (INWATS) line was maintained at Stanford for two months, November 1971 and May 1972. Availability of the line was publicized to educators in randomly selected school districts. There was no overlap in the set of eight states chosen for publicity of the November "hotline" and the seven states chosen for publicity of the May "hotline."

One member of the Stanford team served as call-receiver during the several hours each day when the service was available. As educators had been informed via mailings to school districts, the "hotline" stood ready to accept any question dealing with educational research or practice.

INSTRUMENT. No questionnaire was used, but the call-receiver attempted to record the caller's position and level according to categories that appear on the basic questionnaire. The request itself was coded according to the three dimensions of information need that appear on the back of the basic questionnaire -- PROCESS, CONTENT, and HUMAN VARIABLES. Calls were tape recorded, and coding decisions made by the call-receiver were checked by another member of the Stanford team.

STUDY ADMINISTRATION. There was no field activity in this study, since data collection events were initiated by respondents when they called the hotline.

Instead of field activity (e.g., as in the state surveys), the hard tasks of this study were request coding for research purposes and actual fulfillment of each request. Request fulfillment was handled by another member of the Stanford team, in most cases using the resources of the Stanford ERIC clearinghouse and in some cases referring the request to a more competent fulfillment source.

NUMBER OF CASES. Because of a slow onset of use in each month, coupled with the problem of time-consuming individual calls, the number of requests coded in November and May was 161 and 222 respectively. The educators who made these calls represent a tiny fraction of those who presumably became aware of the hotline service through mailings to school districts.

FINDINGS. Tables 34 and 35 show the information need pattern captured by each month's hotline traffic. Our impression of these patterns is that callers were broadly representative of "school people." Relative to the query followup study or the projections of the information specialists study, fewer of the hotline callers were developers, planners, policymakers, etc. The hotline callers tended to be principals and teachers in schools reached by the hotline announcements.

If we play the game of matching the hotline information needs pattern against professional specialty patterns in Tables 3A, 4A, etc., we find results that differ from those on pages 83-84. The professional specialty patterns that overlap most with the 40 topics mentioned in both hotline patterns are:

Preschool/elementary teachers (4A)	16
Administrators other than principals (7A)	16
Presch./elem. principals/administrators (8A)	16
All principals (6A)	15
Program specialists/consultants (14A)	15
All teachers (3A)	14

Least overlap is found between the combined hotline patterns and the following four specialty patterns:

Guidance counselors/psychologists (11A)	7
Instructional resources personnel (12A)	7
Preschool/elementary service personnel (15A)	7
Secondary service personnel (16A)	7

Discussion of the hotline's agreement with other methods continues in Chapter VIII.

INFORMATION NEEDS TABLE 34 (NOVEMBER HOTLINE) - 87

ALL PERSONNEL TYPES: SAMPLE = 161

TOPIC 1	TOPIC 2	N	% SAMPLE
Teaching Techniques		16	0.10
Scheduling		9	0.06
Grading		7	0.04
Teaching Techniques	Testing & Assessment	4	0.02
Teaching Techniques	Reading	4	0.02
Group Processes	Performance	4	0.02

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	50	0.20
Testing & Assessment	15	0.06
Educ. Media Serv.	12	0.05
Scheduling	12	0.05
Reading	12	0.05
Performance	12	0.05
Group Processes	11	0.04
Grading	10	0.04
Policy Planning	9	0.04
Educ. Admin. (Gen.)	7	0.03
Statistical Analysis	7	0.03

INFORMATION NEEDS TABLE 35 (MAY HOTLINE) - 88

ALL PERSONNEL TYPES: SAMPLE = 222

TOPIC 1	TOPIC 2	N	% SAMPLE
Teaching Techniques		12	0.05
Educ. Admin. (Gen.)		7	0.03
Testing & Assessment		6	0.03
Grading		5	0.02
Personnel Admin.		5	0.02
Reading		5	0.02
Early Chldhd. Educ.	Testing & Assessment	4	0.02
Finance Plng. & Admin.		4	0.02
Grading	Policy Planning	4	0.02
Scheduling		4	0.02
Teaching Techniques	Reading	4	0.02
English Language Skills		4	0.02

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	41	0.12
Testing & Assessment	29	0.09
Educ. Admin. (Gen.)	22	0.07
Reading	22	0.07
Research	18	0.05
Performance	13	0.04
Policy Planning	12	0.04
Couns., Guid. & Psych.	11	0.03
Early Chldhd. Educ.	11	0.03
Finance Plng. & Admin.	11	0.03
English Language Skills	11	0.03

VII. THE "EDUCATIONAL SERIALS TOPIC TRENDS" STUDY

In this last study we reasoned that educators' information needs comprise a set of topics that concern them professionally, and that these topics would be reflected in papers or articles written by them. The trick, of course, is locating an "indigenous" literature of papers or articles written by the educational practitioners that the "Sensing Network" project otherwise focuses upon.

Books, dissertations, and research reports were clearly not what we wanted. If there is an "indigenous" literature in education, it consists of articles published in hundreds of magazines and journals. The great majority of these articles are case studies (e.g., "How we Use Cross-Age Tutoring at Washington School") written by and for school people. We needed a source of such articles, so that topics of the articles could be coded in parallel with other studies in the "Sensing Network" project.

After an abortive look at journals of state education associations, we decided to code the entire spectrum of magazines and journals indexed by the CURRENT INDEX TO JOURNALS IN EDUCATION, a broadly based serials index sponsored by the National Center for Educational Communication. Because of a frustrated interest in collecting time-lag data in the field (e.g., in the state surveys), we chose to cover four time periods in this analysis of serials -- fall 1970, spring 1971, fall 1971, and spring 1972. This coverage was achieved by taking four entire issues of CIJE -- December 1970, June 1971, December 1971, and June 1972 -- and analyzing the topics that indexed articles deal with.

INSTRUMENT. No questionnaire was used, but a coding form was developed from the basic questionnaire to expedite the analysis of topics in the hundreds of articles indexed in the four issues of CIJE.

STUDY ADMINISTRATION. This was fundamentally a content analysis study. Articles were coded by one member of the Stanford team and spot-checked by another. The only difficulty noted in this task was that of determining inter-topic relationships. In few cases was it possible to infer such relationships from the indexed information.

NUMBER OF CASES. A total of 2,756 topics were coded from the four issues of CIJE.

FINDINGS. Tables 36 through 39 present the four successive patterns. It is immediately apparent that the CONTENT dimension (numbers 401 - 416 on the questionnaire) figures more prominently in these tables than the PROCESS (numbers 301 - 321) or the HUMAN VARIABLES dimensions (numbers 501 - 513), whereas the converse was true in preceding tables.

It is also apparent that the pattern is unstable across time. No two time periods agree strongly with each other, although, as we shall see in Chapter VIII, there is a tendency for proximate periods to show the strongest agreement. There is no coding artifact to account for this tendency, since the issues of CIJE were not coded in serial order.

INFORMATION NEEDS TABLE 36 (CIJE DECEMBER 1970)

ALL PERSONNEL TYPES: SAMPLE = 505

TOPIC 1	TOPIC 2	N	% SAMPLE
Art, Music, Humanities		33	0.07
Couns., Guid. & Psych.		19	0.04
Nat. & Phys. Sciences		17	0.03
Current Social Problems		16	0.03
Research	Attitude	13	0.03
Teaching Techniques		13	0.03
Educ. Admin. (Gen.)		12	0.02
Research	Special Education	12	0.02
Educ. Media Serv.		11	0.02

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	73	0.10
Research	71	0.09
Art, Music, Humanities	41	0.05
Nat. & Phys. Sciences	37	0.05
Attitude	30	0.04
Educ. Media Serv.	29	0.04
Current Social Problems	29	0.04
Couns., Guid. & Psych.	27	0.04
Testing & Assessment	27	0.04
English Language Skills	27	0.04

ALL PERSONNEL TYPES: SAMPLE = 665

TOPIC 1	TOPIC 2	N	% SAMPLE
Art, Music, Humanities		24	0.04
Library Services		17	0.03
Teaching Techniques		14	0.02
Current Social Problems		14	0.02
English Language Skills		14	0.02
Educ. Admin. (Gen.)		13	0.02
Testing & Assessment		13	0.02
Racial/Cultural Dis.		13	0.02
Educ. Media Serv.		11	0.02
Research	Perception	11	0.02

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	73	0.07
Research	67	0.07
Art, Music, Humanities	52	0.05
Testing & Assessment	51	0.05
Racial/Cultural Dis.	47	0.05
Educ. Media Serv.	41	0.04
Learning	38	0.04
Attitude	33	0.03
Library Services	32	0.03
Pre/In-Service Tng.	32	0.03
English Language Skills	32	0.03
Reading	32	0.03

INFORMATION NEEDS TABLE 38 (CIJE DECEMBER 1971)

ALL PERSONNEL TYPES: SAMPLE = 892

TOPIC 1	TOPIC 2	N	% SAMPLE
Library Services		42	0.05
Foreign Languages		40	0.04
Pre/In-Service Tng.		34	0.04
Testing & Assessment		32	0.04
Attitude		31	0.03
Couns., Guid. & Psych.		30	0.03
Educ. Admin. (Gen.)		28	0.03
Policy Planning		24	0.03
Nat. & Phys. Sciences		24	0.03
Teaching Techniques		23	0.03
Mathematics		23	0.03

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Attitude	59	0.05
Couns., Guid. & Psych.	56	0.05
Library Services	55	0.05
Teaching Techniques	53	0.05
Testing & Assessment	50	0.04
Pre/In-Service Tng.	47	0.04
Mathematics	45	0.04
Foreign Languages	44	0.04
Nat. & Phys. Sciences	40	0.04
Current Social Problems	37	0.03

ALL PERSONNEL TYPES: SAMPLE = 694

TOPIC 1	TOPIC 2	N	% SAMPLE
Foreign Languages		50	0.07
Educ. Media Serv.		27	0.04
Teaching Techniques	Foreign Languages	20	0.03
Educ. Admin. (Gen.)		19	0.03
Current Social Problems		18	0.03
Group Processes		18	0.03
Couns., Guid. & Psych.		14	0.02
Curric. Plng. & Dev.		14	0.02
Teaching Techniques	Business, Office Occ.	14	0.02
Teaching Techniques	Nat. & Phys. Sciences	14	0.02

RANKED TOPIC TOTALS

TOPIC	N	% TOTAL
Teaching Techniques	98	0.09
Foreign Languages	81	0.08
Educ. Media Serv.	61	0.06
Nat. & Phys. Sciences	56	0.05
Curric. Plng. & Dev.	51	0.05
Group Processes	49	0.05
Research	39	0.04
English Language Skills	39	0.04
Business, Office Occ.	37	0.04
Testing & Assessment	35	0.03
Attitude	35	0.03

VIII. CONVERGENCE OF FINDINGS

A simple analysis of convergence was performed on the overall information need pattern produced by each method. The steps were:

1. Overall data on PROCESS, CONTENT, and HUMAN VARIABLES were arrayed as a 50-element vector for each method (also for each state within the state survey method and for each time point within the hotline and serials methods).

2. Arrays for 12 states (Pennsylvania absent), the query followup study, the information specialists study, the two hotline studies, and the four CIJE studies were brought into row-wise correspondence so that, for example, the frequency of response to #301 occupied the first row of a 20-column matrix.

3. The Euclidean distance separating each vector from every other vector was computed via the D statistic.

4. The resulting triangular matrix of 190 distances was summed and averaged. Z-scores were computed around the mean of all distances.

5. Signs were transposed, since the indication of strong agreement (minimum distance) by a negative Z is counter-obvious.

The resulting matrix of Z-scores is displayed in Table 40. Borrowing the terminology of Campbell & Fiske (1959), certain regions of the matrix can be identified as "monomethod" and others as "heteromethod." For example, the bottom 11 rows of the matrix form a monomethod block for the state surveys. In the upper left corner of the matrix is a heteromethod value (088, or 0.88) involving the information specialists and query followup studies.

TABLE 40 CONVERGENCE OF INFORMATION NEED PATTERNS IN 20 STUDIES (Z Scores: 100 = 1.00) - 96

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Info. Spec. 1	088	014	018	-047	-046	-052	-068	107	001	052	026	034	000	046	006	084	044	096	037
Query F'up 2		-080	-073	-104	-113	-136	-127	091	104	103	063	107	047	102	073	038	115	074	089
Hotline 11-71 3			113	051	033	046	036	017	-161	-084	-106	-132	-118	-085	-110	028	-082	017	-089
Hotline 5-72 4				060	036	032	016	003	-150	-082	-106	-129	-122	-084	-107	033	-084	036	-089
CIJE 12-70 5					073	052	054	-034	-176	-109	-146	-162	-153	-105	-126	-041	-122	-022	-123
CIJE 6-71 6						074	033	-039	-181	-129	-148	-158	-166	-123	-136	-053	-125	-018	-129
CIJE 12-71 7							081	-033	-181	-128	-142	-178	-161	-121	-150	-063	-132	-036	-133
CIJE 6-72 8								-029	-179	-119	-144	-170	-163	-123	-151	-065	-122	-028	-130
Alaska 9									038	091	062	051	048	101	070	086	099	098	078
California 10										119	100	134	093	109	112	-003	140	014	111
Minnesota 11											104	122	102	147	133	046	150	059	115
Nebraska 12												097	112	116	131	018	129	022	129
New York 13													113	124	137	007	142	024	116
N. Carolina 14														099	118	029	123	004	116
Oregon 15															124	026	125	056	129
Texas 16																017	126	010	106
Utah 17																	059	092	032
Michigan 18																		062	129
Colorado 19																			039
Iowa 20																			

The relative size of the monomethod and heteromethod values is the essence of this convergence test.

INTERPRETING THE Z-MATRIX. In Table 40, an entry of 000 (0.00) indicates exactly an average level of agreement between two studies. An entry of -100 (-1.00) indicates a level of disagreement that is one standard deviation away from the average. Similarly, an entry of +100 (+1.00) indicates a level of agreement that is one standard deviation away from the average.

With these interpretive rules, the following observations can be made about the Z-matrix:

1. With the exception of a -003 value between California and Utah, the 12-state monomethod block shows that agreement among the states always exceeds the average of the matrix as a whole.

   The average value within the state monomethod block is +087, nearly one standard deviation better than the average.

2. However, the strongest monomethod agreement is found between the November and May hotlines. They are associated with a value of +113, more than one standard deviation better than the average.

3. There is also a positive relationship within the CIJE monomethod block. These four studies have an average monomethod value of +061.

4. All other regions of the matrix are heteromethod blocks. Among these, the highest level of agreement is found between the query followup and information specialists studies (+088).

5. Almost the same level of agreement is found between the query followup study and the 12 state surveys (average of +084).

6. Completing this triad of positive heteromethod relationships, we find that the information specialists study and the 12 state surveys have an average value of +044.

7. There is a positive relationship between the two hotline studies and the four CIJE studies (average of +039).

8. There is relatively strong disagreement among the following sets of studies:

Information specialists and CIJE (-053)

Query followup and hotline (-077)

Query followup and CIJE (-120)

Hotline and 12 states (-074)

CIJE and 12 states (-117)

SUMMARY OF THE CONVERGENCE TEST. The conventional distance statistic D was used to express levels of agreement and disagreement between 20 methods/studies (Pennsylvania having been omitted from this analysis because of timing). The 190 D scores relating the 20 methods were summed, averaged, and converted to Z scores. The resulting Z-matrix provides a basis for viewing interstudy relationships in terms of monomethod and heteromethod blocks.

The three monomethod blocks (involving the two hotline studies, the four CIJE studies, and the twelve state surveys) all indicate positive relationships among multiple studies of the same type.

There are two patterns of affinity within the heteromethod blocks. The state surveys, the query followup study, and the information specialists study agree rather well among themselves. Similarly, the hotline studies and the CIJE studies converge, although at a lower level.

These two internally related groups "reject" each other with negative values in the -053 to -120 range.

Given certain assumptions about primacy among the methods, this pattern of agreements and disagreements lead to recommendations concerning preferred methods in Chapter IX.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. CONCERNING A "METHOD OF CHOICE"

There is a center of consensus among studies in the Z-matrix. It definitely unifies the 12 state surveys, the query followup study, and the information specialists study. It "rejects" the two hotline studies and the four CIJE studies.

Studies that fall within the consensus group differ only moderately in cost. Writing off Stanford's cost in developing the questionnaires, sampling plans, computer analysis programs, etc., a future state survey of 500 cases will cost about $2,500 from first arrangements to delivery of the report. A desirable increase to 1,000 cases would increase costs only by about $500, to $3,000, since the number of cases is not a major cost determinant. (These cost estimates assume state responsibility for actual sampling, mailing, and followup.)

Replication of the query followup study would cost a bit less, say $2,250 for 500 cases, because of the absence of district-level data to code, keypunch, analyze, and report. The cost would be cut further, to about $2,000, if clearinghouses and information centers mailed the questionnaires themselves and kept track of nonresponses for followup. Costs for 1,000 cases would be about $2,750 and $2,250.

The small information specialists study was only an exercise in projection. The extent to which its findings agree with those of other studies can be taken two ways -- with delight if one hoped for agreement but expected the worst, with disappointment if one hoped to supplant field studies with projections of this kind.

Because most costs of these studies are not a function of sample size, a 150-case replication of the information specialists study would cost about $1,500, resulting in the highest unit cost of any study within the consensus group. Both costs and outcomes mitigate against replicating the information specialists study.

A choice between the state survey and the query followup method is affected by considerations such as these:

1. Although data gathered from a systematic sample (state survey) have more appeal than data gathered from an accidental sample (query followup), each state survey requires negotiations with a state representative who, in turn, must negotiate with the SEA and LEA's to secure mailing lists and to distribute the questionnaires. The query followup study is simpler to administer.

2. Although the query followup study exhibits sampling bias, this is largely corrected by analyzing professional specialty groups by themselves.

3. At least some state dissemination directors value the state survey because it draws attention to their dissemination projects. Also, the state report, when they receive it, provides a framework for discussion within the SEA.

4. The state survey can guide state dissemination policy and multi-state aggregate data can guide federal dissemination policy, but the query followup method has a more ambiguous relationship to policy planning at either level. Size and geographical representativeness of query followup samples determine their use in policy planning.

5. Properly institutionalized in the yearly cycles of SEA effort, the state survey could be relatively effortless to continue.

6. However, the same could be said about the query followup study if clearinghouses and information centers develop "automatic" procedures for distributing and reclaiming the questionnaires.

We feel that the choice between these methods should reflect a significant "external" consideration -- namely, how does the cooperating organization benefit from the effort it invests? That is, what benefits does an SEA derive from cooperating in a state survey? What benefits does a clearinghouse or information center derive from cooperating in a query followup study? If either organization cooperates only to serve the data gatherers (ultimately, NCEC), then it would be better not to conduct the study at all.

However, if an SEA or a clearinghouse/information center can adapt its policy planning to take advantage of needs data, then both of the following arrangements could be justified on a continuing basis:

1. A state would plan, on an annual or biennial cycle, to distribute and reclaim the information needs questionnaire. Completed questionnaires would be sent to an NCEC contractor for batch analysis. Individual state results would be reported back to the state. Multi-state aggregate data would be reported both to the state (for purposes of comparison) and to NCEC.

   Assuming general preference for biennial 1,000 case surveys, the yearly activity would be 20-25 states and 20,000-25,000 cases.

   Assuming some economies of scale, the annual cost to NCEC would be about $50,000.

2. A clearinghouse or information center would plan, on an annual or biennial cycle, to distribute and reclaim the information needs questionnaire. Completed questionnaires would be sent to an NCEC contractor for batch analysis. Individual results would be reported back to the clearinghouse/center. These results would be used to guide acquisition policy, plan information analysis products, etc. Aggregate data would be reported both to the clearinghouse/center (for purposes of comparison) and to NCEC.

   Assuming general preference for biennial 1,000 case surveys, the yearly activity would be 10-15 clearinghouses/centers and 10,000-15,000 cases.

   Assuming some economies of scale, the annual cost to NCEC would be about $25,000.

It would be ideal for both kinds of studies to proceed in parallel, so that results can be cross-checked.

Notwithstanding all these considerations, if we had to recommend a single "method of choice," it would be the state survey.[1] Our preference is based, conceptually, on its systematic sampling procedure and, empirically, on its performance in the convergence test.

B. THE QUESTIONNAIRE

We cannot fault the questionnaire as far as it goes. Except for a few categories that should be added or altered in the five dimensions, the questionnaire seems adequate to the purpose of profiling information needs on a broad scale.

To narrow the gap between questionnaire results and policy planning, greater specificity could be added via open-ended questions that ask the respondent:

1. What problems have you encountered in your work, during the past year, that might be solved or simplified if you had more information about them? (Please be as specific as possible.)

2. What current developments in the field of education do you particularly wish to know more about? (Please be as specific as possible.)

3. What individual books, articles, papers, etc., among those you've read during the past year, exemplify the kind of information you'd like to have more of? (Please identify each as well as you can.)

4. . . . (Similar free-response questions to be developed and pre-tested.)

Coding responses to these questions for quantitative analysis is possible, but we recommend a procedure of aggregating responses into broad categories and reporting them verbatim. Quantitative analysis is not essential, since the questionnaire's original three questions would be analyzed quantitatively in any event.

C. USING INFORMATION NEEDS DATA IN POLICY PLANNING

Occasionally, in the past, information needs data have not been translated into policy. Policy planners have objected to the lack of direction in such data. The data themselves do not indicate which information products should be planned, except in general terms (e.g., information products are needed on "teaching techniques with respect to motivation").

It should be remembered that information needs data are "system status indicators," like health indicators, business indicators, labor indicators, population indicators, etc. Indicators help to clarify a condition, but they do not suggest their own remedy.

We can take business indicators as an example. If a commonly used indicator, like new housing starts, suggests a condition in need of governmental stimulation, the policy planner must develop his strategy apart from the indicator itself. He can review past strategies and their effects. He can impanel experts to discuss strategies. A new policy may emerge from these activities, but not from the indicator of new housing starts itself.

NECESSARILY A TWO-STEP PROCESS. The information needs data contained in this report suggest a number of areas in which new information products can be provided. The exact nature of the new products depends on federal/state/local factors beyond our knowledge. We recommend that federal/state/local panels be created to review the findings of this study and to propose appropriate action.

This report focuses attention on the most frequently stated information needs within each educational specialty. Most of the findings are face-valid, and only the relative ranking of information needs is new data. Thus a panel responsible for proposing new information products for teachers can begin with the fact that the high-frequency category of "teaching techniques" is juxtaposed with particular curriculum subjects and with particular student variables like "motivation." Categories like "teacher/student relations" and "attitude" appear frequently enough to indicate a need for products in these non-curriculum areas.

Similarly, a panel responsible for proposing new information products for administrators can begin with the fact that categories like "school/community relations" and "finance planning and administration" are dominant. Panel discussion is needed to clarify the federal/state/local factors that underlie each response and condition the selection of new products.

The agenda before such a panel might include:

1. Brief review of educational dissemination -- centers of activity, personnel, products.

2. Review of information needs data. Discussion of educators' probable frame of reference in answering questionnaire items.

3. Discussion of primary needs stated by educators within each specialty. Clarification of federal/state/local factors related to these needs (e.g., is the need for information on "pre/in-service training" related to a new certification law?).

4. Review of available products that may address needs (e.g., PREP reports from the National Center for Educational Communication, PET packages from the Northern Colorado Board of Cooperative Educational Services). Review of available data on effectiveness of such products (Wanger, 1972).

5. Discussion of alternatives: (a) disseminating existing products more widely, on the presumption that educators are unaware of them; (b) creating new products, perhaps with a state/local focus that the PREP/PET products lack.

6. Discussion of feedback mechanism to determine if chosen products address the needs that educators had in mind when they participated in the information needs assessment.

These steps parallel the action of any other panel (e.g., in health, business) that is charged with reviewing needs data and proposing appropriate policy.

D. SPECULATIONS ON THE COHERENCE OF INTEREST "CLUSTERS"

Because information "naturally" comes in packages -- papers, articles, books, etc. -- it is "natural" that most dissemination policy focuses on packages. It is easy to fall into the habit of equating each information need with a package that addresses the need. Thus anyone who is experienced in educational dissemination can visualize the reviews and practical guidance papers that would be written to address "teaching techniques in relation to motivation" or "testing and assessment in relation to racial/cultural disadvantage."

There are two defects in such atomic, rather than molecular, thinking. First, even though an information need may be expressed separately (often because a questionnaire requires it), the need originates in a context of work experience where it is certainly not separate from other needs. Each of these needs contextualizes other needs -- the meaning of the whole pattern is greater than the sum of individual meanings.

Second, when separate needs are translated into separate information products, the target audience is caught in a flood of paper. Each individual user will fail to notice a large proportion of materials that float by.

RESPONDING TO NEED CLUSTERS RATHER THAN INDIVIDUAL NEEDS. Although tables in this report enumerate needs in the usual atomic fashion (except for the juxtaposition that brings pairs of needs together), we think attention and thought should be given to ways of developing dissemination policy around molecular patterns -- that is, patterns in which needs richly contextualize each other.

We are presenting working on a molecular-level analysis of the 22,522 topics mentioned by the 5,078 respondents in our 13 state surveys. It is a large analysis, and it could not be finished for this report.

However, to illustrate such an analysis with simpler data, we factor-analyzed educational specialty/interest data collected by Wanger (1972) and generously made available to us. The following factors were obtained from a principal axis solution rotated to simple structure via the varimax criterion. Correlations were computed from multiple specialties/interests expressed by each respondent. Sample size equals 3,013. Loadings in parentheses.

FACTOR I	Physical education (.70)
	Mathematics education (.60)
	Health/safety/driver education (.59)
	Science education (.57)

	Fine arts (.49)
	Home economics (.47)
	Social science education (.46)
	English/language arts (.38)
	Languages/linguistics (.32)
	Reading (.25)
	Secondary education (.25)
FACTOR II	Adult/continuing education (.55)
	Adult basic education (.53)
	Vocational/technical education (.45)
	Home economics (.28)
	Junior colleges (.25)
FACTOR III	Ethnic/minority education (.59)
	Bilingual education (.59)
	Compensatory education (.46)
	American Indian education (.45)
	Languages/linguistics (.32)
	Early childhood education (.26)
FACTOR IV	Curriculum development (.49)
	Secondary education (.44)
	Teacher education (.40)
	Instructional materials (.31)
FACTOR V	Psychological services (.62)
	Counseling/personnel services (.59)
	Tests/measurement (.41)
	Exceptional children (.39)
FACTOR VI	Media/technology (.59)
	Instructional materials (.54)
	Library/information science (.50)
FACTOR VII	Elementary education (.57)
	Early childhood education (.55)
	Reading (.47)
	Ethnic/minority education (.31)
FACTOR VIII	Higher education (.56)
	Junior colleges (.51)
	Adult/continuing education (.27)
FACTOR IX	English/language arts (.45)
	Languages/linguistics (.45)
	Reading (.34)
FACTOR X	Research/development (.43)
	Tests/measurement (.39)

Limitations of this illustrative analysis include: (a) small number of categories the respondents could choose among, which, however, was appropriate for Wanger's study, (b) the rigid factor analysis model. We are presently seeking a better outcome, using our more differentiated data and a non-parametric statistical procedure.

Setting aside methodological complexities, the point we are making is a simple one: More successful dissemination policy may result from addressing information needs at a molecular rather than atomic level. Resulting products would resemble handbooks or yearbooks more than individual papers. They would be directed toward groups of educators (not necessarily traditional classifications) who express interests or needs within a single cluster. Modern composition and printing technology (e.g., MT/ST or the computer on which this report is being prepared) would be used to keep each product current and accurate. Size, visibility, and perceived usefulness of such products would significantly increase utilization.

E. THE DIFFICULTY OF ACHIEVING SPECIFICITY IN RESPONSE TO USERS

Whether the delivery format is atomic (individual paper) or molecular (handbook or yearbook), much stress is placed on achieving specific response to educators' expressed needs. Desirable as such specificity is, we should be aware that specific measurement of needs may lead to disappointment among users when the educational dissemination system fails to provide equally specific response.

There is a common presumption that a large information system (e.g., ERIC, with its 75,000+ reports) has all the answers. Failure to obtain appropriate, specific response from a system like ERIC is usually imputed to the indexing system. However, we cannot expect 75,000 reports to cover millions of possible permutations among educational interests and requirements. As a result, there are often few or no reports at the intersection of two or three well-worked fields.

The specificity problem is easily illustrated by conducting ERIC searches on typical specific requests. The following searches were conducted at the Stanford ERIC Clearinghouse in 1971 ("&" is the logical "and" of co-presence):

1. A: Selection (of materials or programs) = 49 reports

   B: Instructional improvement, instructional innovation, instructional materials, instructional media, instructional programs, instructional materials centers, instruction aids = 1,477 reports

   A&B = 2 reports

2. A: Secondary grades, secondary education = 401 reports

   B: Disadvantaged youth, disadvantaged groups = 630 reports

   C: Social studies, American history, world history, history instruction, civics = 154 reports

   A&B&C = 4 reports

3. A: Vocational education = 1,467 reports

   B: Secondary education, high schools, grades 10-11-12 = 1,446 reports

   C: Evaluation, program evaluation, curriculum evaluation = 2,691 reports

   A&B&C = 36

Taking the last set as an example, the maximum number of reports that could belong to A&B&C is 1,446. The actual number of reports belonging to A&B&C is 36, or 2.5 per cent of the maximum. We can imagine the user's frustration when he finds that a total of 5,604 reports have been posted to the three topics, but that only 36 reports combine all three topics. His frustration will increase when he looks further and sees that some of the 36 reports are too old, others are too simple, others too complicated, etc.

As measurement of information needs becomes more specific, new delivery systems will be required to match need specificity with response specificity. One of the most promising "delivery systems" is the educational expert of all kinds, from indigenous to exotic.

One of our common assumptions about the role of the print information system and the human information system is backwards. Actually, it is the print information system that states the obvious. The print information system tells its story one dimension at a time (first read about "teaching techniques," then read about "motivation").

It is the human information system that can combine any number of topics, however improbable, and say something useful or at least interesting about them. The human information system can match need specificity (the million-to-one permutation) with a response that addresses precisely that need and no other.

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APPENDIX

Topic Trends in the Educational Report Literature

Suzanne P. Hawkins
Robert Hawkins

A wide-spread belief among scientists is that the range of research topics they pursue is subject to periodic, systematic variation: research goes where the money is, to fashionable topics, or to problems people have newly become aware of. However, given the large bulk of any field and the relatively small number of grants awarded, the heterogeneity of age and academic training, and the time-lag for the dissemination of new ideas and awareness through a field, systematic variation is not a foregone conclusion but an empirical question. Therefore, the present study looked to the educational report literature, as represented by the contents of the ERIC system, for evidence that such trends do exist.

Twenty subject descriptors were chosen from the ERIC Thesaurus as interesting topics that would be likely to reflect changes in research interests. Descriptors which had been used more than 1,000 or less than 400 times by the ERIC system in its five and one half years of existence were excluded to avoid catch-all categories and categories used too seldom to give any idea of stable trends. The number of articles listed under each descriptor was counted in the annual and semi-annual index to RESEARCH IN EDUCATION (RIE) for the years 1967-1971. Since vastly different numbers of documents were processed by ERIC in different years, Table I shows, for each descriptor, what fraction of the documents processed in that time period were indexed under that descriptor (any given document, however, may be listed under up to five descriptors).

Before considering any trends, the reader should be aware of the limitations of the citation-counting method. Changes in the

proportion of articles indexed under a given descriptor may be due to a real-world change of focus by educational researchers, but it might just as easily be due to the opening of a new ERIC clearinghouse which might more zealously search out both present and past articles that fit the present descriptor. Alternatively, the change might be due to the continuing process of re-definition and sharpening of the descriptors by the individual abstractors and clearinghouses. Finally, it is important to remember that many of the terms used might not represent clean, complete concepts. An article titled "Teaching Black Children to Read" might not appear under the descriptor "Negroes," "Negro Education," or "Negro Students," but only under the descriptor "Negro Dialects" (1967 semi-annual index). The use of the descriptor "Negroes" by the present study, then, might miss some of the research on the topic of interest.

Under the sobering influence of all these qualifications, we can proceed to look at Table I for trends in the use of descriptors which might reflect changes of research emphasis. Over the 1967-1971 period there have been dramatic or consistent increases in the use of a number of descriptors. References to behavior change, computer-assisted instruction, and educational finance have all increased. References to two of the three minority groups investigated, American Indians and Mexican Americans, increased, with the increase being especially dramatic for American Indians. References to information systems increased across the full time period, with a particularly large increase in 1971.

On the other hand, references to what is probably a general minority-group term, culturally disadvantaged, have decreased through the time period. References to reading instruction dropped to a steady and moderately high level after being very frequent in 1967.

Four terms, socioeconomic status, school-community relations, sex differences, and films, have shown relatively little change in frequency of reference across the five year period.

A few other descriptors show interesting, irregular patterns: references to educational television, mentally handicapped, and Negroes all increased to a peak in either 1968 or 1969 and then decreased sharply between 1967 and 1968 and have increased slowly since then.

It is tempting to attribute these trends to changes in the research thrust of educational research. Comparing the trends with one's memory of recent events can easily lead to explanations in many cases. However, we will resist this temptation, because it is not really possible with the methods used here to specify which trends are due to changes in research and which are due to changes in the ERIC system. What this report does provide are preliminary findings from which hypotheses can be generated, and further research should be done to test them.

TABLE I. Yearly Topic Trends in the Educational Report Literature. (Documents per Thousand)

	1967	1968	1969	1970	1971
American Indians	9	6	12	16	20
Behavior change	2	4	5	8	8
Cognitive processes	7	5	8	4	6
Computer-assisted instruction	2	6	7	13	13
Culturally disadvantaged	12	11	11	7	5
Education finance	7	6	7	10	11
Environmental influences	8	4	6	5	4
Films	7	3	5	3	5
Information systems	4	7	9	8	14
Educational television	4	10	7	4	2
Language development	11	5	6	6	8
Mentally handicapped	11	14	18	13	7
Mexican Americans	4	7	9	7	10
Negroes	3	9	4	3	4
Preschool children	4	9	11	5	8
Reading instruction	18	12	10	10	11
Sex differences	3	1	2	3	3
School community relations	4	4	5	4	5
School integration	4	11	7	5	9
Socioeconomic status	4	1	2	3	3
Total ERIC reports/year	2255	8803	10453	10456	12300

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INSTITUTE FOR COMMUNICATION RESEARCH

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Dear Educator:

The Stanford Institute for Communication Research is developing an "information needs sensing network" for the United States Office of Education.

This network will enable the Office of Education to continuously monitor educational information needs and to determine WHO (in education) needs WHAT FORMS of information on WHAT TOPICS for WHAT PURPOSES.

Data from this study will help guide both your state dissemination office and the Office of Education in planning and implementing dissemination programs.

Your cooperation in completing this questionnaire will be greatly appreciated.

1. Please describe your current position using the position and level codes listed below.

I am currently a _____ (position code) working at the _____ (level code) level.

POSITION

101. Chief administrator, deputy or assistant
102. Dean, department head
103. Principal, assistant principal
104. Administrator, planner
105. Curriculum supervisor, supervisor of instruction
106. Guidance counselor, school psychologist
107. Instructional resources specialist (librarian, media specialist)
108. Personnel administration, training
109. Program specialist, consultant
110. Researcher
111. School board member
112. Teacher—arts, music, humanities
113. Teacher—English, reading, language skills, foreign languages
114. Teacher—mathematics, natural science

POSITION (Continued)

115. Teacher—social studies, social sciences, history
116. Teacher—vocational education, home-making, health, physical education
117. Other _____

LEVEL

201. Preschool
202. Elementary school
203. Junior high or middle school
204. High school
205. College, university
206. Adult and continuing education
207. District level
208. State or regional level

EXAMPLE: A teacher needing information on testing and assessment of the mentally retarded might answer:

I need information on 321 in relation to 508 .

EXAMPLE: An administrator needing information on school/community relations might answer:

I need information on 316 in relation to — .

PLEASE ANSWER HERE:

I need information on _____ in relation to _____ .

I need information on _____ in relation to _____ .

I need information on _____ in relation to _____ .

I need information on _____ in relation to _____ .

I need information on _____ in relation to _____ .

PROCESS

301. Bilingual education
302. Counseling, guidance, psychological services
303. Curriculum planning and development
304. Early childhood education
305. Educational administration (general)
306. Educational media services
307. Facilities planning and administration
308. Finance planning and administration
309. Grading
310. Library services
311. Personnel administration
312. Policy planning
313. Pre-service/in-service personnel development
314. Research
315. Scheduling
316. School/community relations
317. Special education
318. Statistical analysis
319. Teacher/student relations
320. Teaching techniques
321. Testing and assessment

CONTENT

401. Agriculture
402. Art, music, humanities
403. Business, office occupations
404. Career training (health occupations, industrial arts, etc.)
405. Current social problems (technology, ecology, war, drugs, etc.)
406. English language skills
407. Foreign languages
408. Health, safety, physical education
409. History
410. Homemaking
411. Mathematics
412. Natural and physical sciences
413. Philosophy
414. Reading
415. Religion
416. Social studies and social science

HUMAN VARIABLES

501. Ability
502. Attitude
503. Cognition
504. Emotional disturbance
505. Group processes
506. Learning
507. Memory
508. Mental retardation
509. Motivation
510. Perception
511. Physical handicaps
512. Racial/cultural disadvantage
513. Performance

3. Information is most useful to me in the form of: (check as many as apply)

- ☐ Original research papers
- ☐ Summaries of research
- ☐ News and professional current awareness
- ☐ Case studies, descriptions of practice
- ☐ Practical, how-to guidance.